

'IBM turnover \$100bn by 1990'

by Boris Sedacca

IBM will quadruple in size to become a \$100 billion organisation by 1990, according to one optimistic forecast.

By the year 2000, IBM will have a world-wide turnover of \$300 billion and will have become a consumer products manufacturer, according to a report* by market research analysts Strategic Inc.

These events will take place over four "strategic periods", starting with the distributed processing strategy from 1981 to 1986, based on the 308X mainframe series Extended Architecture and remote 4300s.

This will then be followed by the office automation strategy from 1986 to 1990, which will be based on Systems Network Architecture and characterised by vertical marketing programmes, voice products and low-cost optical character recognition devices.

The period from 1991 to 1995

will see IBM moving into its communications strategy, followed by its entry into the consumer products market. The Strategic report describes the IBM Personal Computer as "a big market research project".

"IBM wants to triple its turnover from \$100 billion to \$300 billion in the 1990s, and therefore cannot ignore this market," says the report, indicating that these periods all add up to one grand IBM strategy - the Information Age.

But IBM has to iron out certain problems to reach its goals, cautions the report. "IBM professed that it encouraged 'wild ducks'. It is an in-house joke at IBM that it encouraged them as long as they flew in formation," it says.

In a time of change, IBM needs wild ducks and one of the ways to recapture and recycle some of them would be to organise an IBM venture capital fund. This would

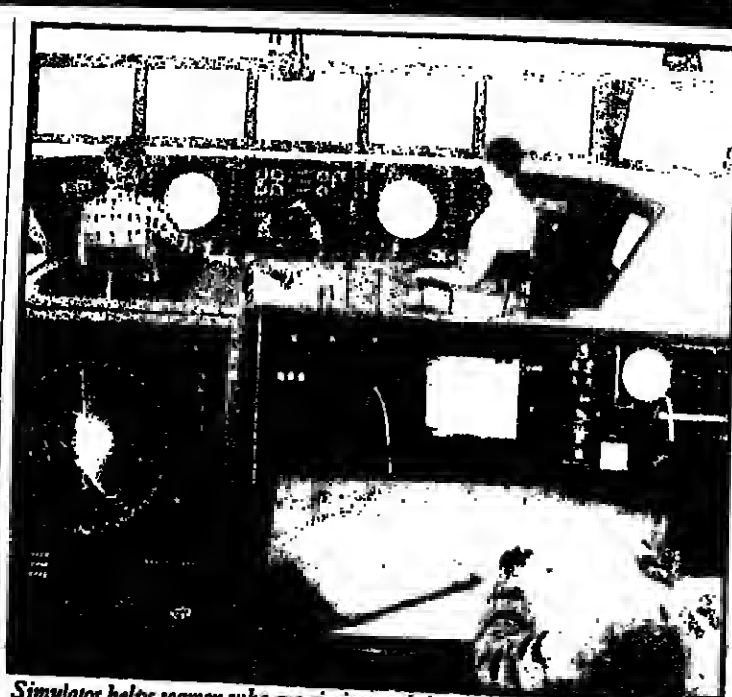
provide IBM with the flexibility to enter new markets at an early stage, develop new technologies and provide different types of rewards and working environments from those normally associated with the company.

Another problem perceived by Strategic is IBM thermal conduction module technology used on the 308X series, which it describes as a "technology trap".

"This is a very expensive approach, requiring special tooling for manufacturing and maintenance. Although the packaging is elegant, it is expensive, and TCM pushes the state of the packaging art beyond its economic limits. Simply stated, there are cheaper ways to solve the problem."

Nobody at Strategic was in a position to substantiate this assertion when we went to press.

*IBM - The Key Issues, Strategic Inc. Available from IPI, 134 Holland Park Avenue, London W11 4UB. £895.00.



Simulator helps seamen who are aiming at their master's certificate.

Trainees sail a PDP-11

by John Kavanagh
SUSAN is doing her bit for sailors in Hamburg. For Susan is a £3 million ship handling and navigation simulator, giving practical training to Hamburg Polytechnic students aiming at a master's certificate. And it is claimed by its

manufacturer, the Krupp engineering group, to be the world's most sophisticated system of its kind.

Susan is built around a Digital Equipment PDP-11/60 minicomputer linked to six Krupp process control computers, one of which controls 11 projectors presenting what is happening in the "sea lanes" outside the "bridge".

For extra realism a hydraulic system under the bridge produces suitable pitch and roll motions.

The system holds descriptions of different types of vessel and navigation and manoeuvring situations, which can be called in through a keyboard.

For example, the trainee captain and navigator can take a container ship from Geroon Bight to Hamburg, navigating and casting off with or without help from tugs. Poor visibility, currents, wind, other traffic and other conditions can be generated to test students.

Krupp says the rapid growth of sea traffic and the increasing size and speed of vessels have led to shortages of seamen with ship handling experience. Krupp says that the simulator eliminates the need to let trainees loose on the high seas to get experience.

Rush is on for the new VAX

by John Kavanagh
DELIVERIES have started on Digital Equipment's new bottom-end 32-bit minicomputer, the VAX-11/730, launched in April. The first machine in the UK has been delivered to systems house Coulson Heron Associates and DEC says well over 100 will be installed in the UK in the next six months.

CHA managing director Richard Coulson said his company already had three VAX-11/730 customers lined up. And CHA expects to take a second in-house system before the end of the year.

Coulson said the system was priced very attractively and had extremely low running costs. "A great part of our future will be tied up with the VAX," he said.

CHA is using the system for applications software development and for work on broadband networks. The company is one of DEC's 10 authorised computer distributors.

The VAX-11/730 provides 30% of the power of the original big VAX-11/780 at 20% of the price.

The low-end VAX is part of DEC's two-pronged attack on computer markets. At the other end of its computer products scale it is moving increasingly powerful versions of the PDP-11 architecture onto single microprocessor chips, and eventually will continue this process up to the VAX range. When it does so, the VAX-11/730 is likely to be the first to

SALES BRIEF

£330,000 contract for Hoskyns

WATER treatment specialist Houseman, maker of Pump water softeners, has placed a order worth over £330,000 in software house Hoskyns for a order processing and inventory control system based on a Data Equipment VAX-11/730 minicomputer. Hoskyns' MAS-M modular application system, for which over 2,000 elements have so far been implemented.

Blood records

HUDDERSFIELD hospital laboratory has ordered a CT 43 from Computer Technology to keep records on the 35,000 test samples its haematology department handles each year. Data will be input from a Coulson 31 measurement and study machine via a CT Lab minicomputer.

Foundry system

BUTLER Foundries Group has placed a £60,000 order with Nali for a Basic Four 210 running in Cast production control and accounting system developed by foundries by Devcon Computer Systems of Birmingham. Nali Profit manufacturing systems are included in the order.

Mail order

NATIONWIDE Building Society is installing three Bell & Howl Aim System 7 computer-controlled mailing systems costing a total of £173,000. The system cut, fold and insert computer-generated documents into envelopes at a rate of up to 6,000 an hour. Additional material for each envelope from up to six different batches the output by postal use.

Reed speed-up

REED paper group subsidiary Spicer-Cowan is investing £300,000 in an order processing and stock control system based on a Data General MV6000. The system will be accessed from VDUs in its Southern regional distribution centre and four sales offices, enabling orders to be despatched within 24 hours of receipt.

Steel design

BRITISH STEEL has ordered four graphics workstations from the UK subsidiary of Intergraph, together with Intergraph's IGDS design and drafting software and DMRS database management system, for use with its own Digital Equipment PDP-11/70.

Key readers

PLANTIME, the Watford-based supplier of flexible working time recording systems, has won a £40,000 order from Ferranti Computer Systems for 1,600 coded readers to control access to a computer network from the VAX attached to it.

Riding high

UK SUBSIDIARY of Motorola Data Sciences has won an order for 60 terminals and nine printers for production control in TI Raleigh bicycle factory. They will be used with the company's IBM 3081 minis and 3031 mainframes.

Conspect check

CH-HONEYWELL BULL has helped the Swedish Ministry of Defence keep track of its inventory by supplying seven 3000 medium-scale computers and terminals for use in the production board's regional offices. Systems were chosen for their access control features and capabilities.

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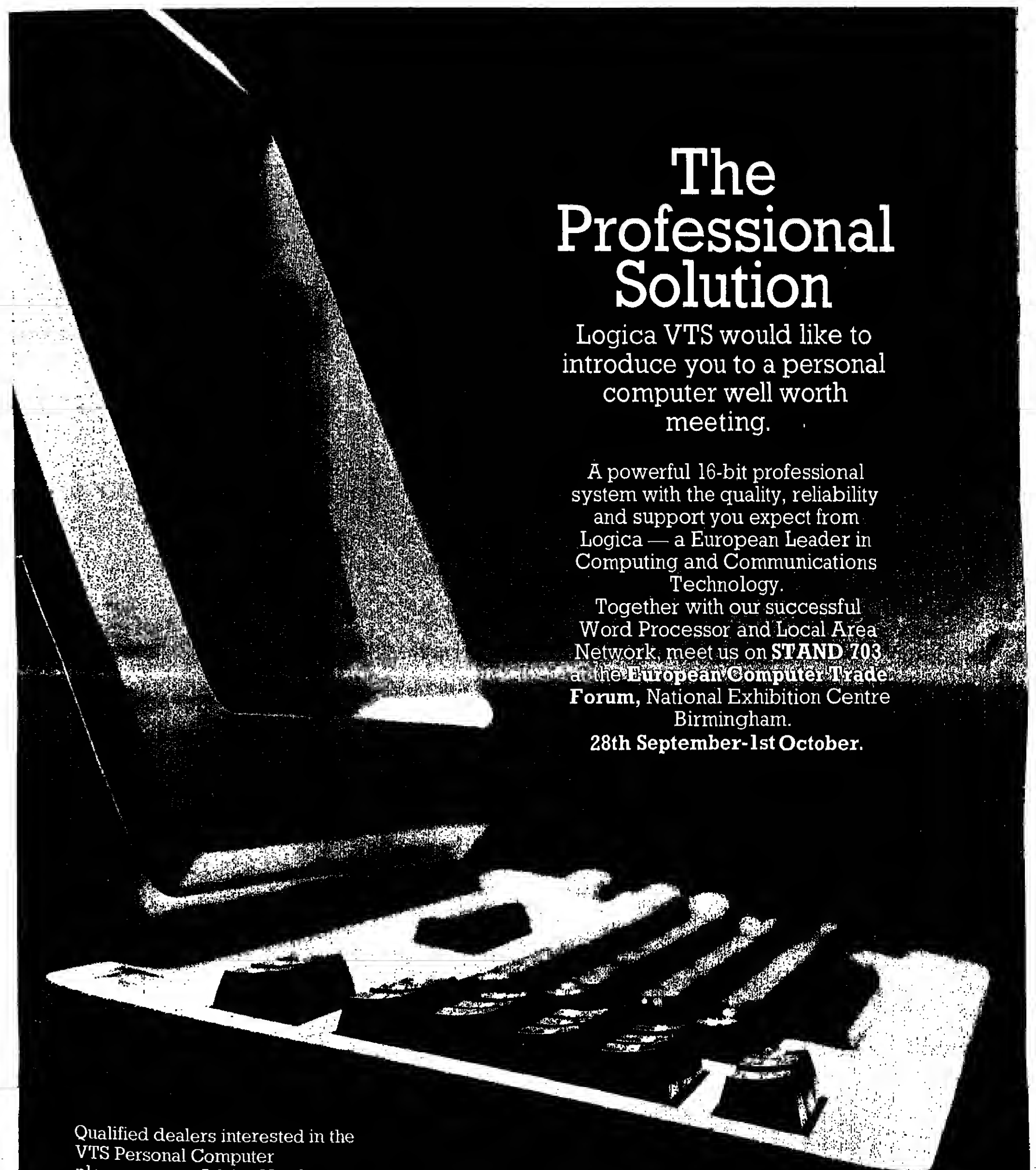
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Over 2,600 visitors meant success for Compec Scotland 82, held in Glasgow last week. Margaret Cameron reports

Canny buyers are not taken in by fancy talk

COMPEC Scotland 82 was held last week at Glasgow's City Hall. And the Scots are to have a return visit of the exhibition in just eight months' time, in May 1983 at the Kelvin Hall.

This is the first Compec Scotland and one of a growing number of regional Compecs in the UK, the first of which started last year in Manchester, Compec North. All are sponsored by Computer Weekly.

The second Compec North was held in June this year and a new exhibition, the first Compec Wales, will be held next March at Cardiff University. Compec exhibitions have been running for some years now, in London and Brussels.

The Scots gave evidence of a subtly different market from that of the smoother DP professionals in the South. "Money is tighter in Scotland" was the observation of many exhibitors.

But Master Systems sales manager Bob Taylor admitted they would never have ventured so far north if they had not believed there was a worthwhile market waiting to be wooed.

"The Scots are 'just looking', it seems, because the economic situation has hit them harder. Their biggest single excuse for not talking figures is lack of money, not lack of interest," he said.

With large Scottish customers at Scottish Gas and Strathclyde University, Master Systems already likes to be identified with the Scottish market and to this end, stacked up its stand with cans of Tarran Ale.

Rediffusion Computers, which has up to now relied on its 50-foot mobile marketing truck for its "missionary" work in Scotland, was one of those exhibiting at the first Scottish Compec.

At ICL's extensive triple-fronted stand, sales executives admitted Scots were far canny than

their English counterparts. One of them, Kelvin Nixon, said: "You have to work that bit harder to persuade the Scots buyer. He is not impressed with fancy talk or jargon. He wants to be dealt with intelligently but straightly."

Both ICL and Rediffusion felt compelled to take the opportunity of exhibiting at Compec Scotland because the annual Compec exhibition in London has such a good name.

One less enthusiastic exhibitor, sales executive Peter Andrews at the Northern Engineering Industries stand, found the national Compec exhibition hard to emulate. "Compec Scotland cannot be as successful as Compec because there are not enough DP professionals here."

"You must divide all UK statistics by a factor of 10 to apply them to Scotland," he said. But he added that there could be at least a couple of thousand Scottish com-



A market waiting to be wooed - "at least a couple of thousand will be buying this month."

panies whose managing directors had to make decisions this month alone on the purchase of at least £10,000 worth of computer equipment.

Tony Stewart, managing director of Keyboard Productivity, a Glasgow training company, said: "Scotland is really a country characterised more by small businesses. The DP market here is for

companies employing from 40 to 300 staff.

"Often there will be no DP professional or specialist in the company, so they have to look outside for training and consultancy advice. The exhibition has created great interest among the DP professionals there are in Scotland and it is nice to see that the big computer firms realise Britain doesn't stop at

Watford Junction.

"If only other computer companies would now and then give us a bit of time to get to know their particular needs of Scotland, their sales trips up here would be very successful. Scots do not want to be treated as if they are backward from their own by big bamboozled with too many technical words."

New boss to shake up MDS

by John Kavanagh
AN ICL man has taken over with a bang at MDS Computer Systems (UK), part of the US distributed systems supplier Mohawk Data Sciences. After a month as managing director 36-year-old Gerry Meredith-Smith is planning new product pricing structures, a dealer network for small systems and the introduction of an identity card production system.

He has also created a public relations manager's job to spread the word about MDS, and has restored the Mohawk name to the company's letterheads.

In 15 years at ICL, Meredith-Smith moved from humble programmer to corporate strategy

planning executive reporting directly to Robb Wilnot, the managing director. At 22 he was put in charge of a trouble-shooting team following the birth of ICL and a year later became the company's youngest account manager and then the youngest regional sales manager.

He was headhunted by MDS to take over from Ray Skinner, who resigned to go into the recruitment business.

Meredith-Smith aims to quadruple MDS' turnover from the current £5.2 million over the next two years, partly by concentrating on big sales. He is thus looking at selling small systems through dealers, leaving MDS salesmen to



MBEREDITH-SMITH... "We're one of the best-kept secrets."

tackle the company's traditional field: selling distributed systems to big-name companies.

MDS' US parent is opening the way to such a move by considering putting Digital Research's CP/M operating system on its smallest system, the Series 21/10. CP/M is virtually an industry standard system and there is a wealth of applications software available to CP/M users.

Meanwhile Meredith-Smith is looking at new pricing for MDS' Trivet range of IBM-compatible display terminals. At present the company offers no discounts.

New products in the pipeline include an electronic mail service and a system which produces plastic identity cards.

This system is made by a US firm, DEK, which was taken over by MDS.

UK launch of graphics system with word and data processing bonus

by Robert Parry
A MICROPROCESSOR-based computer graphics system with the added bonus of word and data processing capability through the ubiquitous CP/M micro operating system is about to reach the UK. Reading-based Sintrom Electronics has won exclusive UK distribution rights for the Beacon CAD/CAM and general graphics system from recent US start-up Florida Computer Graphics.

With the Beacon system, which can be used as a standalone workstation, a network of workstations or as an intelligent terminal to host mainframes, Sintrom is first aiming at skilled users in R&D departments - the traditional CAD/CAM graphics market.

Users can choose 16 graphics and 16 alphanumeric colours from a palette of 256 shades for the 640 x 480 resolution display. Zoom and roam features allow expansion and windowing of parts of images, which can be stored with four times the screen resolution in the maximum expanded graphics memory.

formation systems will be the largest market, worth about \$840 million in 1986.

Even if Sintrom's figures, an amalgam of predictions from various market research sources, prove optimistic, Moseley will not be too worried. "Half that predicted growth rate still gives you a healthy market to be in," he says.

The Beacon systems use numerous microprocessors, a 16-bit graphics processor built up from AMD bit slices and a Z80A administrator to carry out general purpose tasks aided by dedicated processors for keyboard and monitor functions. The operating system used is called FOGOS, which is CP/M-compatible.

Users can choose 16 graphics and 16 alphanumeric colours from a palette of 256 shades for the 640 x 480 resolution display. Zoom and roam features allow expansion and windowing of parts of images, which can be stored with four times the screen resolution in the maximum expanded graphics memory.



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The second element of the tender request is for OCR equipment, which is a convenient way of overlooking the fact that the new media chosen for the key input task are very much more highly mechanised and less labour intensive than the existing massive key-to-disc operation.

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GENERAL ELECTRIC



Lack of money, not lack of interest, affects the decision to buy.

ICL loses and gains

■ From page 1
Given the Prime Minister's interest in seeing ICL involved in the DVLC contract, it is surprising that the specification was written so that ICL could not tender for the key central processors. This political hot potato is one of several likely to drop in politicians' laps as a result of the Swansea tender.

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OCR Scandata and Scan optics

have been chosen to complete this equipment, which will be required to read between 500 and one million documents per week. Both again are American companies and were among the few companies which could actually tender for optical character reading equipment which is not hand generated input.

The third element of the tender so far made public is for the printer requirement. IBM and ICL, which will presumably offer the Siemens laser printers, are both shortlisted for this element of the tender, which will be worth several million pounds and which is likely to be awarded jointly to both firms.

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Sales up 53% at Floating Point

by Kevin Cahill
SPECIALIST array processor supplier Floating Point Systems has produced third quarter results showing sales and profits substantially up on last year.

Sales for third quarter 1982 were \$22.5 million, compared with \$14.5 million for the corresponding quarter last year, a 55% increase.

The sales growth was substantially exceeded by profits which at \$3.06 million were 101% up on the corresponding quarter of 1981 (\$1.5 million). The nine-month turnover was \$63.1 million compared with \$41.1 million for the first nine months of 1981.

The figures meet almost exactly the estimates for profit and sales made a few months ago by industry analyst Susan Hirsch of New York brokers Smith Barney Harris Upham.

Test harness for PL/M language

by Kevan Pearson
COMPUTER and software consultancy Scicon has launched a test harness for Intel's PL/M language. The harness allows PL/M programs to be tested quickly and simply, the company claims.

The device is available in four versions, one for PL/M 80, and three for PL/M 86 including one with a built-in 8086 microprocessor for development work, and another for use in iRMK-86, Intel's own operating system for its 8086 device.

The system automatically checks the result of running a program and produces a test log recording the input data, and results, with explanatory comments.

Licence fees for the 8080 version are £1,000 a system. Versions for the 8086 cost £2,000 for one system, £3,500 for two licences and £4,500 for three.



Is your computer telling the truth?



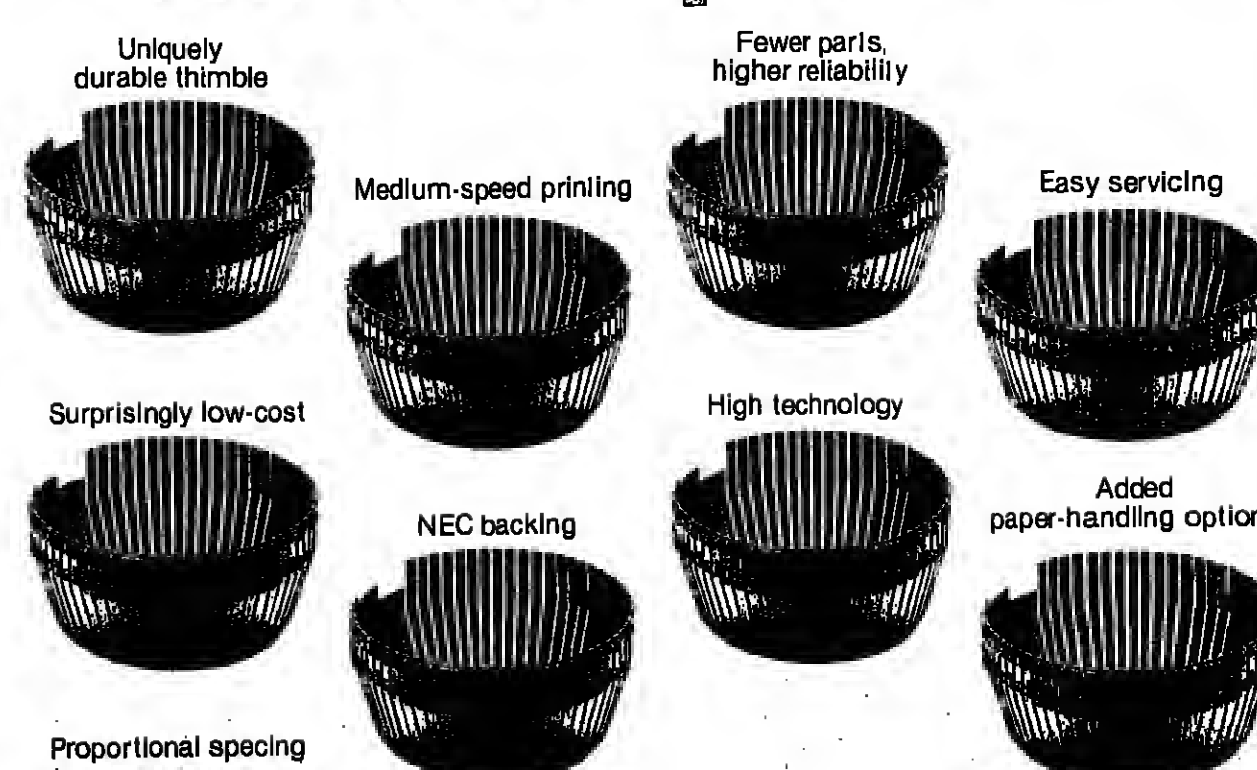
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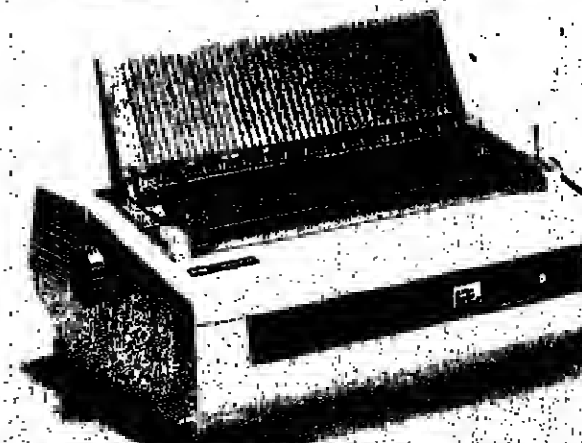
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64Kbit/sec BT service in New Year

by John Kavanagh
BRITISH Telecom's 64K hits-a-second communications service will be available between six UK cities from January and the order book will be opened next month.

The new service is KiloStream, one of BT's X-Stream digital communications services launched at the start of the year. It is a private circuit service allowing users to send data on a single telephone speech channel without modems. It handles only one speech channel but provides very fast transmission for data, text and facsimile.

Initially the service will be available between London, Birmingham, Leeds, Manchester, Newcastle and Sheffield. Most other major towns and cities will be hooked up by mid-1983 as part of BT's £2,000-million-a-year modernisation plan.

John Whyte, managing director of major systems at BT, said over 120,000 miles of digital systems were now working.



GILBERT... "This technology will become the norm in broadcasting."

Kode moves to Europe

KODE Services is taking its Winchester disc repair service into Europe by setting up maintenance facilities in Germany in the next nine months. At the same time the UK firm has won a contract from the fourth US manufacturer, Computer Memories, to handle repairs for its European customers.

The move into Europe comes less than a year after Kode Services started in the Winchester disc maintenance business by spending

£75,000 on setting up a repair centre. And the company sees the move as part of an international expansion of its general engineering support services. "We are doing a fair amount of disc repair business in Europe, and Germany in particular has been very good for us," said financial director Ernie Griffiths. "Setting up repair facilities there will give us credibility on which to build a field service operation."

Here is the TV News — by WP

by Robert Parry
AFTER the office of the future, the television studio of the future. The BBC, backed by £250,000 from the Department of Industry, is to bring in a computerised word processing system to handle news preparation for breakfast television.

The system, based around twin Hewlett-Packard HP3000s, will be installed in the BBC's Lime Grove Studios. The DoI grant, under the scheme announced in June to set up pilot office of the future projects in public sector organisations, goes to HP for the hardware. The BBC will pay installation and maintenance costs.

As well as the normal word processing facilities to help journalists prepare stories, the system will be linked directly to Reuters and other news agencies. Individual producers or programme researchers will be able to use the system as a diary and to store information.

The complete 24-hour programme script will be compiled on the system, all the way down to accurate running times for items based on presenters' reading speeds. Late changes and re-timings will be easy to incorporate, even once the programme transmission has started.

"This technology will very much become the norm in broadcasting studios," says Philip Gilbert, general manager of the Lime Grove Studios. He emphasises the speed and versatility the system will bring to generation of programme scripts.

Use of the system will be expanded to cover other affairs programmes, Home and Nationwide, he says. The two HP3000s will be through distributed software and each has its own storage. About 30 screens are reported, spread around the production offices and studio. The two machines are designed to give resilience to the system. If one goes down, a user is able to move on to the other connected to the other way.

First govt demo cent features 'real' CAD

by John Kavanagh

INDUSTRIAL computer-aided design is on show doing real live work at the government's first demonstration centre.

The centre has been set up at Solartron Electronic Group in Farnborough under the £9 million programme aimed at promoting awareness of the use of computers in the electronics industry. It was opened last week by industry under-secretary John Butcher.

Visitors can see Solartron staff using a Computervision CAD system to generate production drawings from printed circuit board designs. "It is ironic that the industry which has led the microelectronics revolution should need to be made aware of the use of computers," said Butcher. "Yet studies show that the UK is slow to adopt computer-aided design, manufacture and testing compared with overseas competitors and that there is a lack of awareness in many small companies."

"If this situation is allowed to drift, the UK's competitiveness will decline," Butcher added that there had

been an encouraging report from the government's £12.5 million equipment funding scheme introduced in July. Support of £600,000 had been approved for projects out of 40 applications. Howard Dorey, chief engineer at Solartron, said his company was getting value for money. "I'd say there would be a lot of value there have been — and that's because it shows people willing to learn," he said.

Dorey said Solartron had good results from CAD. "It covered the cost of our first nine months. That's pay for investment of that kind."

Solartron is working to more automation. It has a Equipment 32-bit VAX computer for circuit design, automatic test equipment, automatic circuit board drilling, semi-automatic chip insertion. The other demonstration centres are at Racal Communications in Bracknell, Farnborough, Edinburgh and Micro Circuit Engineering in Tewkesbury. It is arranged through the Institution of Electrical Engineers in London.

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28th September 1982 The Petrochemical Industry
An analysis of the fastest-growing energy and petrochemical centre in the UK, and the services and support the region offers the industry. Guest Speaker: Michael Mong-Hansen, CIBA Ltd, Chemicals Ltd.

29th September 1982 Advanced Technology
As technological awareness increases, companies are finding it harder to evaluate the advances that have been made in the light of their own needs. This region, however, abounds in consultative aid. Guest Speaker: Professor M.G. Mylro, Bradford University.

30th September 1982 The Services Industry
A discussion of the region as a centre for insurance, Finance and Business Services, with special emphasis on excellent transport and communications links. Guest Speaker: Peter Wycheley, Dunlop Sports.

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SOFTWARE FILE



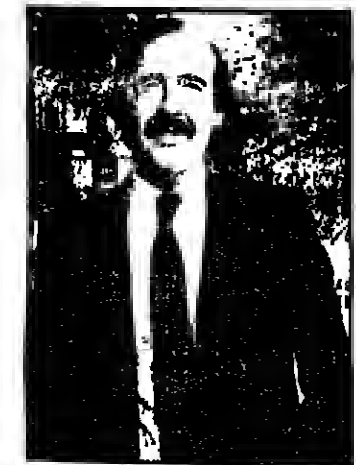
HUNT... Graphics will be the icing on the cake, not used to tell.

Relational DBMS for 16-bit micros on Oasis

RELATIONAL database will soon be available for 16-bit microcomputers on the Oasis multi-user operating system.

Systems house SISCO has implemented the Control database developed by Phase One in California on the Oasis system to run on the Executive machine made by the Computer Information Company in the UK, for which it is an OEM. Executive can be either an 8- or 16-bit micro, so the 16-bit implementation will be compatible with the IBM Personal Computer and ACT Sirius 1, both of which support Oasis.

"We have held back from launching the 16-bit version because people have not yet realised the benefits of the second generation of micros," said Patrick



O'BRIEN... "Not to be the cavity and first over the bridge."

Software File is compiled by Maggie McLening.



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Graphics firms rush into colour

WITH the foot of financial modelling now firmly planted inside the business door, it may soon be wearing a range of colourful shoes.

Following database specialist Cullinane's recent link-up with Computer Pictures to provide its IDMS Online Query Language with colour graphics facilities, major US software package supplier Management Science America (MSA) and its subsidiary Peachtree Software International have both announced products in similar vein.

This is likely to be the start of a spate of colour graphics releases by other software suppliers, as the graphics industry moves quickly towards establishing its own standards. Twelve graphics software companies recently pledged support for the two standards, North American Presentation Level Protocol Syntax (NAPLPS) and Virtual Device Interface (VDI), adopted by hardware

manufacturers Digital Equipment Corporation, Intel, and Tektronix. Major names among the 12 include Digital Research, ICL, Microsoft, Xerox, ISSCO and Westinghouse Electric Corporation.

Standards for graphics protocols and function interfaces will give a stable basis for future development, and financial modelling is an obvious area in which colour graphics can be used to improve clarity and impact of data.

"I see a big trend towards graphics for reporting, both on mainframes and micros," said Michael Hunt, vice-president of MSA. "Although our prime business is selling financial application software, there will be a lot of graphics bundled in with it, because there is such a demand. The graphics will not be used to sell the financial packages; they will be the icing on the cake."

MSA has launched an interface module to operate in conjunction

with the company's forecasting and modelling software, which can be linked to access any MSA system modules, such as general ledger, accounts payable, payroll and personnel.

"This is essentially an interface to the IBM display system, and as such is supplied free with the forecasting and modelling software," said Hunt. "If the user wishes to download data to a micro, he could use the Peachtree graphics package instead."

Peachtree has launched two colour graphics products: Peachtree Business Graphics System and Peachtree Graphics Language (PGL).

The Business Graphics System includes an interface to Peachtree's Peachcalc, formerly known as Magical, and Peachtext, formerly Magic Wand. It is a menu-driven graphics application program for CPM based micros, which can be used to develop presentation colour graphics.

Ambulance scheduling system

A SYSTEM to streamline ambulance scheduling has been developed by UCL (Systems), a company formed within UCL Northern to specialise in applications software.

The scheduling system is an attempt to curb a massive daily shuffling of paperwork, according to John Ashley, managing director of UCL (Systems).

Using UCL's system, requests for ambulances are input direct to an Ultimate minicomputer system, and scheduling can be left until the last minute. An automatic pre-planning system produces a list with 50% fit of patients to hospitals and ambulance routes.

Each ambulance depot is given a printer, and dials up for the day's schedule of drivers, passengers, times and destinations in the morning. The controller can then adjust the routes to cater for emergency calls by radio control during the day.

The ambulance system, which costs £50,000 including both hardware and software, has been installed in three districts so far.

It runs under the Pick operating system on Honeywell Level 6.

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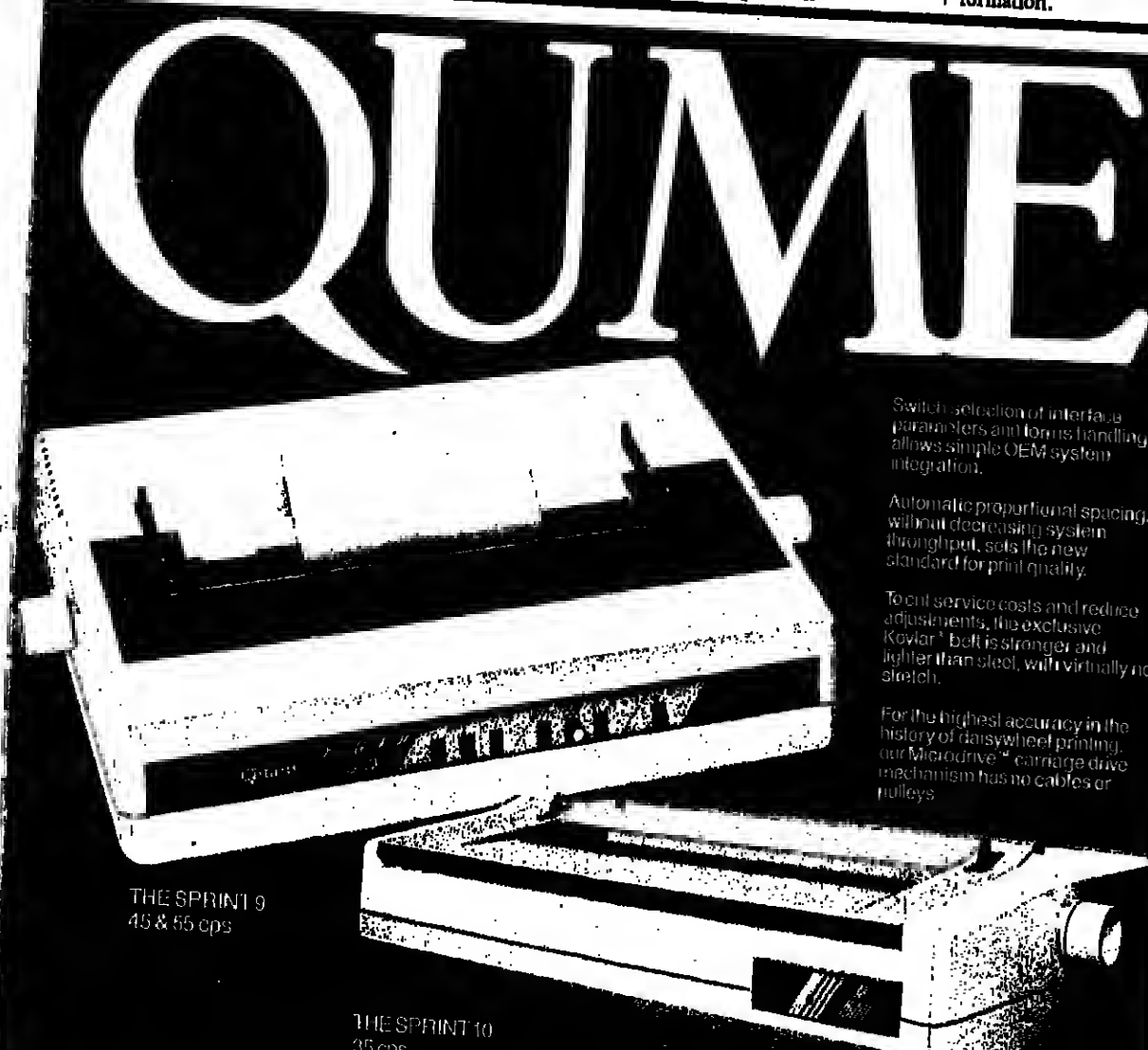
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COMPANY NEWS

Figures take a sharp upturn at AIM

HULL system house AIM has achieved record turnover and profit during the year ending 1982. Sales of £3.5 million were 20% up on last year and profits rose a smart 121% to £177,000 from (an admittedly low) £80,000 in 1981.

Clive Telfer, AIM's chief executive, claims that the company's Charter package, designed to assist solicitors with administration, has become the leader in its field.

Telfer also says that the AIM office in London set up at the beginning of the year contributed highly to the company's excellent results.

AIM is part of the William Jackson grocery chain, which is based in Hull.

Although AIM is breaking into a number of competitive markets, Telfer is confident that with five offices open in the UK by the end of the year he will achieve sales of at least £4.25 million in 1983. The company has signed agree-

ments with DEC for general business applications in the Humber-side and Yorkshire areas, and with Datapoint for kit to be supplied with medical systems.

AIM was originally formed in 1975 from Computer Services Hull, and Clive Telfer became managing director at that time.

Prior to its existence as an independent company AIM was a classic case of an in-house company computer system which was so successful at selling time that the parent floated the computer section off.

AIM's first break away from the normal bureau system came when the company discovered that some local solicitors from Hull were sending their data for processing to London, and waiting for five days to get it back.

Telfer and his team investigated the legal marketplace and from that base developed the Charter package.



BAUER... confident about the second half.

Slide gathers speed at US software house

FEELING the first draughts of the recession, the California software supplier Informatics General Corp has had to report a 25% drop in profits three months after going public.

On turnover up 13% at \$39.8 million for the second quarter of 1982, IGC made \$614,000 compared with \$823,000 in the same period of 1981.

Profits at Informatics have never been exactly high, however. In the 12 months ended June 30, 1981, on turnover of \$131 million the corporation made \$4.7 million after tax. This is a net margin of 3.6% on sales, or just 6% before tax.

But the slide which has become so pronounced in the second quarter was already visible in the first half of 1981.

IGC president Walter Bauer says that reduced economic activity has caused "a general slowdown in a number of business areas, with many companies delaying decisions on the purchase of our higher priced software."

Bauer remains confident about the second half, which he sees as an annually better a stronger base period for the company.

In the longer term, Bauer predicted his company's return to normal growth to an improvement in the economic situation.

Datapoint recovers from order book problem

AFTER the traumatic discovery earlier this year of more than \$15 million of dud sales on its books, US mini supplier Datapoint has just about made it into the black.

For the final quarter of 1981-82 it showed a net profit of \$3.3 million, which gave it a full year profit of

\$2.4 million, a 95% drop on last year.

Following an internal review into the high volume of returned machines earlier this year, Datapoint reported a \$23 million loss in the third quarter. According to the company, this was to allow for an

overstatement of sales in earlier quarters.

Following the review, which uncovered sales to customers which would not normally have met Datapoint's credit requirements, a number of executives left the company.

The reallocation of sales had an effect on the company's backlog, which fell from \$117 million at the end of the quarter, to \$96 million for the quarter.

Despite the upheaval, however, Datapoint showed a 13% turnover for the year.

Stock prices gain from rise

BROADLY, this has been a good week for most computer companies, although the general rise in the world's stock markets accounts for much of the gain.

Quest of Dorset rose an effective 25% from 30/3p to 40p, on a combination of takeover rumours and City hopes that the figures due this week would not be as bad as the half-year loss of £1.4 million implied.

ICL, stubbornly stuck at 55/56p for most of August finally began to move up again as the forecasts of

stockbrokers and their analysts began to be re-shaped.

The ICL year-end is September 30, and current published forecasts range from break-even all the way up to £20 million profit.

NMW rose sharply from 90p to 118p in recent weeks. The company is due to place its shares on the Unlisted Securities Market within the next two months and again, brokers are considering the profit possibilities, last forecast at £625,000.

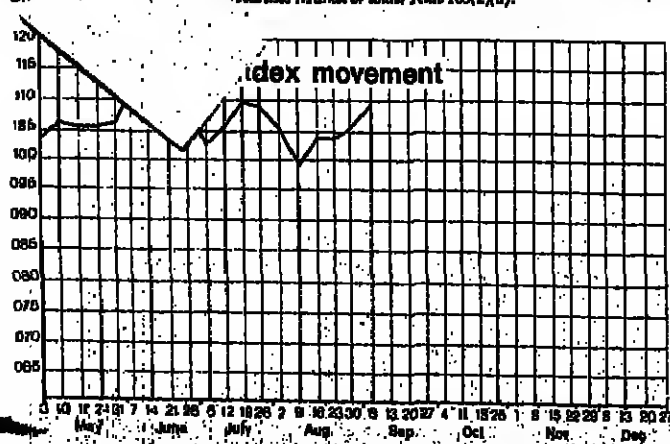
SHARES TABLE

The shares table, which is specially compiled for Computer Weekly, shows selected computer companies that reflect the state of the computer industry.

Data 8/9/82 Index 100.00 Change +1.72

Price	London Stock Exchange	Price	Change	US Stock	Price	Change
High	Low	High	Low	High	Low	High
159	151	151	151	151	151	151
158	150	150	150	150	150	150
157	149	149	149	149	149	149
156	148	148	148	148	148	148
155	147	147	147	147	147	147
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137	129	129	129	129	129	129
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11	3	3	3	3	3	3
10	2	2	2	2	2	2
9	1	1	1	1	1	1
8	0	0	0	0	0	0
7	0	0	0	0	0	0
6	0	0	0	0	0	0
5	0	0	0	0	0	0
4	0	0	0	0	0	0
3	0	0	0	0	0	0
2	0	0	0	0	0	0
1	0	0	0	0	0	0
0	0	0	0	0	0	0

The table shows the index to base 100 on Friday and in America on Thursday. The share of the UK companies in the table. High and Low have been adjusted where necessary.



Company News is compiled by Kevin Cahill

MICRO NEWS

'Ignorance, confusion' typefy network market

THE common view of local networks of personal computers is all wrong, claims a study* of

More to the Cuckoo than meets the eye

IT'S that lovely moment; you have finished amending all your software, you Pet has curled up contentedly and from here on in it's "lie back and feet up" time.

But life doesn't work like that. In comes your boss, and suddenly you need multiple terminals and two new applications and, really, a 16-bit machine.

But what about the 8-bit based applications you have spent all year amending and have only just got running for the first time? Well Larry Park, managing director of Quality Business Machines, has three answers, cost tailored to suit most users and their problems.

A long-term fan of the micro and an early proponent of its use in everything, Park runs a combination of inventors' workshop, hardware design service and software house down among the antique shops of Queens Gardens, Brighton.

"It's a shame to leave that software lying about, each program capable of running on only one machine, or under one operating system, or worse still, on one type of disc," Park says.

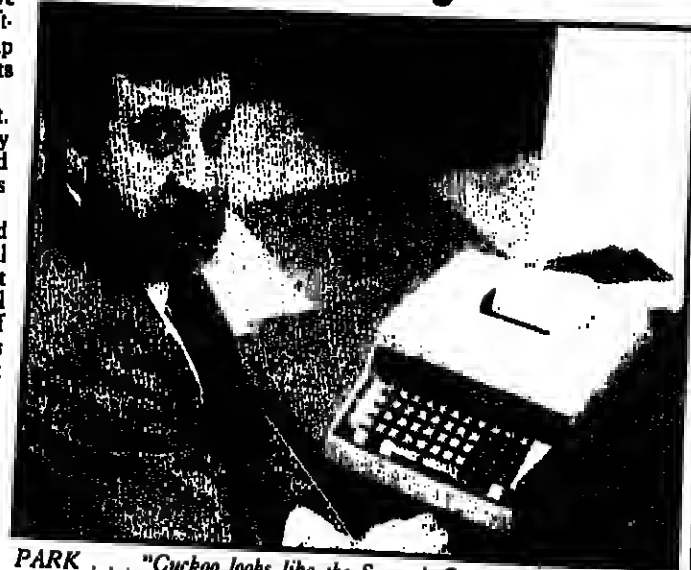
So two years ago he got to thinking about the problems "seriously" as he puts it.

He won't admit that his experience as a mainframe man — he helped found ICL's Dataslink — had anything to do with it, but his answer looks suspiciously like what we used to do when the mainframe was overloaded. We stuck another computer (not in the budget) on to our 2960 and called the new equipment a "front end processor".

Using techniques like this QBM solves three types of problems.

The Cuckoo makes a one-manufacturer software house independent of a single vendor's hardware, by making that software house's products available on any machine, mainframe or micro.

The Dataslink allows any one computer to communicate with other computers more easily. This includes micro-to-mainframe communication and mainframe-to-



PARK... "Cuckoo looks like the Seventh Cavalry."

mainframe connections.

Finally QBM offers a disc conversion service, which will convert software written to run on CPM, so that it can be run on any other disc based system, whether 8 or 16-bit, and based on either 5¼in or 8in discs.

So Larry Park has not invented the universal protocol converter. He and his inventive engineers do need to know what the software was written to run on in the first place, and what you want to run it on now. There are a series of standard Cuckoo interfaces, from CPM-based programs to IBM, Sirius, Puck and so on. On the other hand if you have some obscure Romainian machine, on which you want your 2904 ICL Cobol to run then there is a set-up cost.

Park points out that this one-off cost, which can be reduced by participation of those system houses wanting to use the facilities, can liberate a software house to supply its programs for any make of machine.

"With the recession wiping out so many one-manufacturer software houses, the Cuckoo looks like the Seventh Cavalry," he says.

PLATFORM



What a mess our schools are making of programming

IT seems likely to me that education in programming in our schools is in a mess, and probably doing more harm than good in many cases.

Over the last decade two major areas, which I have termed cultures, have emerged — the professional and the amateur culture. These can now be seen to be drawing apart.

The professional culture is concerned with developing programs of a long-lasting nature. These programs are usually fairly large and written by teams of programmers whose profession is primarily the design and writing of programs. The programs will or should be adequately documented and will need maintenance throughout a life cycle which may last for many years.

The amateur culture has generally the opposite characteristics. The programs are usually small, and are often written by individuals who are amateur programmers — their profession is in a different field such as accountancy, medicine or chemical engineering, and they use the computer merely as a tool in achieving goals in their own field.

The programs are often very short-lived, perhaps used only once, and consequently need little or no maintenance and do not deserve significant documentation.

Because of the short lifetime of the programs it is not vital that the languages used are standard or stable. Important characteristics of such languages are the ease of use and the need for ease of writing and general programmer friendliness. Interactive use is almost inevitable and the programmer is usually also the end user. Examples of languages aimed at the amateur culture are Basic, APL, Mumps and Fort.

The professional culture has been represented, so to speak, the mainstream of development, from Fortran in the early 1950s through to Ada now. The amateur culture is newer, perhaps commencing with Basic in the mid-60s and largely driven by a need to make cheap computing power directly available to the end user.

An important force in the development of amateur languages is user friendliness. The development of professional languages is driven by a quest for manager friendliness.

The reader may have noticed that Pascal did not occur in either list of languages. The status of Pascal is somewhat unusual, it was designed as an educational tool to illustrate the fundamental concepts of data types, data structures and algorithms.

Unfortunately Pascal is too austere. The type concept is not flexible enough to enable the writing of simple procedures to manipulate arrays of arbitrary size, a vital facility provided in all professional languages from Fortran onwards. Pascal also neglected separate compilation. Although individual implementations and the ISO standards have added facilities in these areas, nevertheless the language is still not adequate for the writing of large programs.

But it was a tremendous intellectual development and laid the foundation for language development in the 1970s and in particular laid the foundation for Ada.

At the university level, the education situation looks promising. The dilemma between teaching something practical but horrible like Fortran and something elegant but useless like Pascal could be resolved by teaching Ada as a representative professional language. Assuming that Basic has been inadvertently learnt anyway, it would be appropriate to teach Fortran as a representative amateur language.

At the school level, the situation causes some concern. Many university teachers have stated that pupils who have learnt computer

science at school are at a disadvantage since they have to learn various misconceived ideas. It is largely because they are taught Basic in a rather rote fashion, and do not become aware of the other possibilities. There are also tremendous pressures just to teach Basic. It is readily available at lower cost than other languages, and for those not seeking a rigorous education some general sense of the possibilities of computers needs to be taught. Such a task should be devised around the amateur culture and Basic seems obvious choice. However, it is intended to concentrate on science or mathematics in their form and then possibly with a similar degree, learning Basic is not appropriate.

What is needed to build a set theory and other abstract mathematical concepts which is taught at an early age and vital to many parents at least, is rather pointless. Thus a professional style language like Pascal might be appropriate. Mathematically minded children would also enjoy it.

The teaching of a new subject always difficult. Should it be taught from an historical point of view or from the position of current knowledge? When a young person, an historical viewpoint seems natural whereas when adults this approach is usually a waste of time and misleads.

A final thought: The basic muckers in our big organisations probably belong to an age group which did not have much computer exposure in school. However, they probably children who think Basic is dreadful.

Are these children inadvertently damaging the minds of our decision-makers?

John Barnes

Barnes is director of languages search at SPL.

DOWNTIME

Shall we ever know?

COMPUTER WEEKLY'S copy of the Gulf Telephone Directory had lain idle for several months, and, after our first attempt actually to use it, looks as if it could continue to do so. The beautifully produced guide falls down in one rather important area: pages 253 to 284 are missing.

While this may not seem awfully significant, I can assure you it is rather critical.

The missing 33 pages span the subjects between compressor suppliers and contractors — general.

Those familiar with the inflexible sequencing of the English alphabet will quickly spot that this effectively eliminates all entries beginning "computer".

Reliability test

HOW to judge the reliability of a particular firm's hardware? Simple. Count the number of engineers' company cars parked outside the golf course/pub/manager's parlor, deduct the number seen at user sites; divide the result by the square root of Robb Wilmore's salary, add the number of IBM law suits, finally subtract the number of users waiting for a BBC micro, and you have a number which relates directly to the reliability of the hardware in question.

Well, at least as much as the manufacturer's claimed reliability.

Some lunchtime legends

OFFICES are full of people quiet as mice in the morning who become legends in their own lunchtime, only to sink into post-prandial lethargy in the afternoon.

This description of the average white collar working day illustrates how the word "lunch" has swollen in meaning since it was first recorded for posterity by the great essayist, lexicographer and gentleman Samuel Johnson.

In his day a lunch was a little snack to punctuate the abstinence of a long hard day. Step now into the top people's restaurant L'Epicure, or one of thousands of other lesser, but nonetheless delicious establishments around 1pm and you will see that today's lunch is anything but a little snack. It is a great bit institution.

The Sunday Times recently ran a feature on the lunch describing it as a great divide between the working and executive classes. And Old Bailey jurors were recently warned of the dangers of lunching at pubs and cafes near

court during their cases lest their sense of justice be perverted by unscrupulous underworld bodies.

Meanwhile lunch and journalists have grown an affinity for each other over the last 50 years to such an extent that Private Eye created the legendary hack "Lunchtime O'Booze".

Lunch can be a seductive affair with Zabaglione, that delectable Italian mixture of whipped egg yolk and Marsala wine sweetening many an unpalatable half-truth from the lips of PR officials.

But some companies have tired of just lunching their Press fellows. Apple distributor Personal Computers has dreamed up a new extraordinary notion. It has invited journalists to submit an essay on one of the following subjects: The Personal Computer in 2001 IT Year — bang or whimper; Man may live by data processing alone.

An award for the best essay will be presented at — lunch.

Liveware File

by Don

WHY DOES SO MUCH COMPUTER ART FAIL?

THE ANSWER'S IN KEATS' THEORY...

...OF NEGATIVE CAPABILITY.

...IF A POEM CAN BE A 'NO-NO' IT WILL BE!



Prime project enigma

Q: Where are they now?

A: Not at ICL.

Jim Foy, ex-TMB project manager at ICL, joined Prime in January, and it now seems that nearly all his erstwhile staff have left Wilmot Enterprises for the greener pastures of the US-based mini maker.

Foy and his chums are based at Prime's Bedford R&D establishment where they are hard at



Getting stuck into computers

WHEN I was but a young shaver, knee-high to a teletype, what spare time I had between making mud pies and reading the *Esquire* was usually taken up in the sticky business of making model aeroplanes.

You know the ones — 172 scale Spitfires and Hurricanes which almost, but not quite fitted together. There was always a ravenous part left over, surplus glue hung like polystyrene cobwebs from the wings, and any attempt to paint the pilot's face resulted in a

splodge of Humbrol enamel all but filling the cockpit.

Well, now one of the firms in the forefront of covering a million mother's carpets in glue has a computer connection. STC has just roved into the erstwhile headquarters of Airfix in Kensington.

Does this mean that the telecommunications giant intends to supply its IBM-compatible mainframes in kit form?

If so, who is going to paint the operators' faces?

work on a project enthusiastically titled "The Workstation Project". The team report direct to the UK and Prime UK has little or no idea of what is actually going on — at least not admitting to anything.

But if you were the owner of an ageing operating system for which called, for the sake of argument, Prime, and you had just employed the entire project team of another manufacturer's rather good mini operating system, what would you do to conceal your real purpose?

Probably think up a fictitious project name such as, er... um... The Workstation Project.

STEEB clear of Reading on March 13 for the streets will be clogged with 5,000 runners puffing their way round a 14-mile half-marathon. And the main sponsor will be Digital Equipment, which has its UK headquarters in the town. As well as putting up money DEC will provide a computer system to time the individuals and team's cross the finishing line.

Stan Eldon, chairman of the organising committee, said Reading was "crying out for a major running event". He said competitors would include star athletes and fast runners.

Financial Times

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, September 16, 1982

DEC distributor list in disarray

SEVEN months ago Digital Equipment announced its grandly titled authorised terminal distributor programme and paraded top men from its five "official" distributors. The idea was to give DEC close control of a market which was in some disarray, with a large number of companies competing with the same DEC products.

But now the authorised distributor programme itself is in disarray, with some companies talking of pulling out and others complaining of being undercut by "unauthorised" competitors and even by DEC itself. Meanwhile, long-standing DEC distributors are still smarting at being excluded from the "authorised" list.

In short, as one authorised distributor put it, the programme is a disaster.

The people who are benefiting most from this disaster are users — or are they? In the short term they can get good prices by shopping around at authorised and unauthorised distributors undercut each other; precisely what DEC was trying to stamp out by introducing the programme.

But what of future support as authorised suppliers pull out of DEC's programme in disgust and unauthorised distributors lose interest as their sources of supply dry up? For unauthorised firms which put in long-term orders with DEC at the start of the year, expecting to be put on the official list, now see those contracts coming to an end.

DEC was among the first big manufacturers to try to set up a controlled network of outlets by appointing authorised distributors. Others, including IBM with its Personal Computer, are expected to follow suit as a way of shifting large numbers of small products without a massive central sales force.

It is to be hoped that others will learn from DEC's experiences. For the disarray in such big markets is good for no one: the manufacturer, the authorised and unauthorised distributors, some of which could be facing uncertain futures, and their customers, who risk being left in the lurch.

Turning work to play

BEHIND the scenes at the International Conference on Computer Communications held in London last week, a debate raged on how to minimise the damage and maximise the benefits of information technology.

Packet switching, digital transmission and integrated services all caught on in discussions at conferences, according to ICCC82 chairman John Whyte.

The task facing the computer and communications industries now is to promote the healthy growth and widespread use of equipment and services which will benefit all of us without ruining some of us.

Quite likely there were few delegates at this particular conference who questioned the value of information technology to society, but many in the world outside it remain to be convinced.

One suggestion at the conference related to the acceptance of office automation systems. Richard Clark of Joan de Smith Systems said that micros had caught on because games were available for them and therefore office systems should be trivialised to get them into use. Facilities should be made available that users felt they got something out of, even if the organisation derived no immediate benefits.

This may sound like anathema to a commercial organisation, but at the same time it calls to mind a remark made by Kenneth Baker in his keynote speech to the effect that the relationship between work, education and leisure would have to change in a fundamental way.

Education and leisure are economic activities, just as work is. The trick now required is to develop computer and communications systems that teach us to generate wealth by playing at work.

If that is what comes out of ICCC82, it will have more than earned its keep.

1984 and all that

THIS week's example of the strange things people say about computers was sent in by Wendy Marlow, of Feltham, Middlesex, who wins £5.

Computers chat in various languages but the four most common form the Esperanto of the computer world.

LETTERS

Noughts and 'A slur on most ops'

IN reply to Leonardo Bottacci's letter (CW, August 26) concerning Philip Hunter's July 29 article about my work: Bottacci obviously has trouble with addition. If, as he claims, the sum of available choices in noughts and crosses "depends on where the first player has placed his mark (within his definition of symmetry)" and "there are either two or five different places for the second player to place his mark" (evidently symmetry no longer counts in the latter instance), then either three or eight choices are available for both players, despite the nine spaces that characterise this game.

None of this makes sense. But then logic has no place in Bottacci's scheme of reality. All that concerns him is winning (futile arguments or noughts and crosses).

Bottacci should try solving the 2 x 2 game (Prisoners' Dilemma) problem before tackling the 3 x 3 one. There, if his logic and symmetry principles are followed no one has any choice. But — and this is crucial — in any such situation the losing player has recourse in any return match, giving him the opportunity to win if there is any justice or fairness. Both games, seen as a whole, represent a draw — an agreement between equally mature and matched players that perfection has been achieved. That is one of many notions that have escaped mathematicians and game theorists in the past, irrespective of the maths or logic that were applied. It is the only symmetrical solution that matters, no matter what Bottacci chooses to believe.

Belief is also a matter of choice. But, as shown, perfection is available to all, including Brunel cybernetics students. I'll be happy to elaborate on that if they choose to invite me to address them.

ARNOLD ARNOLD
London NW2.

PHILIP HUNTER's statement (CW, August 26) about "an operator being only too happy with a response time of five minutes while he has a smoke and cup of coffee", is once again contributing an undeserved slur on the good name of most computer operators.

It seems to imply the old-fashioned Sixties theory about operators being "dumb dumb office boys" pushing huttos and stacking boxes of stationery. In fact the operators of this day are an intelligent specialist section of computer personnel, requiring knowledge of hardware, software utilities and ICL for the complexities of modern day computers and operating systems.

I constantly inform my operators about giving equal status to systems personnel and themselves because we are both dependent on one another and should work together, not against each other.

Derogatory remarks of this nature makes it harder for us all to bridge that rift between the operations and technical sides. So please in future spare a thought for the hard working and dedicated operators in this industry.

P. D. ADAMS
Shift leader
(Non-smoker, non-coffee drinker)

Yorkshire Regional Health Authority
Harrogate.

Micro payroll system

I AM AFRAID your publication included three mistakes in the payroll article in Software Month (CW, July 15). The first was our telephone number which is Wisbech (0945) 64146.

Our microcomputer payroll system (Wispay) is supplied on a lease basis which covers all upgrades to the system and accompanying support services. The lease is typically 3 to 4 pence per person per week for a payroll of 500 employees and reduces to 1 penny per person per week for 4,000 employees or more.

The figure quoted of 12½p is misleading as this is the charge if there are only 10 employees on the system.

Thirdly, the article implied that the Wispay system will only run on a North Star Horizon. In fact it will run on any micro capable of supporting CPM, although preferably a system with 512k in order to take advantage of the BACS facility.

I. C. DUFFY
Managing director
Wisbech Computer Services
Cambridgeshire.

Speed for its own sake

YOUR editorial outcry against the pursuit of processing speed for its own sake (CW, August 26) comes as a most refreshing change. As a hardware designer as yet unblinded by the software bug, I have been reading your paper for years to try to learn enough jargon to converse with my programming colleagues.

It seems to me that the fifth generation architectural debate comes as a relief valve for the inter-laboratory pressure cooker of half-voiced dissatisfaction with computers. There are two kinds of thought, and the computer as we know it is a tool for the acceleration of the analytical kind. Words and numbers are the languages of analysis — you can teach this style of thinking to anyone who wants to use it, and it's essentially social. Synthesis on the other hand appears to be unteachable; it's creative, essentially parallel and relies on the interaction of the shapes.

Let's hope the 5G machines emerge as tools for the acceleration of synthesis. Perhaps then the dissatisfaction will evaporate and hardware teams can go back to chasing "more bang per buck".

J. H. POPE

Cambridge.

Going bust

FOLLOWING on Cliff Dillo-way's article "When the supplier goes bust..." (CW, September 2) another safeguard is to arrange with your software supplier to place a copy of his source code, fully annotated with an independent third party. The source code is to be released to you, the user, if and when your supplier goes bust, or otherwise fails to provide a satisfactory maintenance service.

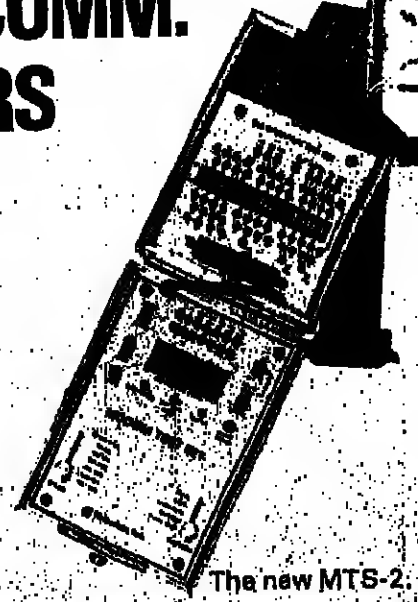
Such arrangements have come to be known as "escrow" arrangements, and both NCC and CSA offer an escrow service.

W. S. ROTHWELL
Assistant Company Secretary
National Computing Centre
Manchester.

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PEOPLE

Lawrence heads Valid sales in Europe

VALID Logic Systems of California has hired high-powered sales director Thomas Lawrence to head its sales and marketing operations in Europe. He will also serve as a vice-president of the US company.

In the newly created position of president and general manager Lawrence will be responsible for the definition, planning and creation of European sales channels for the CAE (computer-aided engineering) system Valid is to announce in September. Scaldsystem is based on the Scald software and consists of a suite of design analysis packages plus graphic design entry hardware.

Lawrence's first job in Europe was launching Priden's entry into the DP market there through its European division with the introduction of the Singer System Ten in 1969.

He built up Apple's sales and marketing teams in Europe and as European vice-president and general manager saw a sales growth from \$16 million to over \$100 million between 1980 and 1982.

Before this he had been with Intel for seven years.

ITT has established the position of executive scientist to recognize individuals for outstanding contributions in scientific disciplines. Dr Charles Kao, in recognition of his pioneering work on optical fibre communications, is the first to take the title. Kao has been vice-president and director of engineering at ITT electro-optical products division for seven years. It is a permanent appointment, and for the first three years appointees are free to work at an ITT laboratory or unit of their choice in areas likely to lead to technological breakthroughs.

ERA Technology has appointed a new manager to lead its expanded power engineering division. He is Richard Stokes, an electrical and electronics engineer, who joins the company from GEC Tracton.

Alex Kaeblek, formerly with Sperry Gyroscope, has been appointed production manager at Case.

John Sharvell has joined Rathdown Industries, a Unitech subsidiary, as marketing manager of telecom products. He was formerly a sales manager with STC.



Birthday celebration

TRAVEL reservations service company Travicom has celebrated its fifth birthday and its growth from a six-agent, two-airline system to one with 420 agents connected to 28 airlines.

In our picture Peter Short (second from left), managing director Eric Jarvis and Frank Manser (third and second from right) are drinking to the next five years with representatives from their "founder agencies".

Former independent consultant Tom Leonard has joined Precision Software as project development director. Former posts include a five-year spell as managing director of Finequote.

Management Resources has elected Andrew Gillon to its board of directors. He was previously company secretary at Rankins Fruit Markets.

Computer services manager at Golden Wonder and HP foods is Paul Hirst. He joined the company in 1974 as a senior programmer and was made chief programmer three years later.

Component product manager Steve Denton is to be promoted to systems product manager at Rapid Recall. He joined the company two years ago as Northern internal sales manager.

Previously a software manager with Olympia Business Machines, June Tucker has now joined Peachtree Software as a support consultant.

MDS has created a new job - that of manager of communications - and appointed Dick Wilkinson to the position. Wilkinson was previously manager of the company's South-West sales area.

Two appointments have been made at Unix. Richard has taken up the post of manager and David Stoddart joined the company as a sales representative. Tyrell was former sales manager at ASB. Sleight was a sales engineer at Ross-Courtesy.

Dave Sperry has been promoted to international manager for Newbury Recording. He was previously Northern regional sales manager.

Golden River has named Oliver marketing manager. He previously held a sales manager position with Data Translation.

Washington-based company Automated Data Systems has changed its name to Applied Computer Systems Inc.

Computer Aided Marketing is a new company that has been set up to help firms use computers to prove sales performance. It is based in Gloucestershire and keen to hear from companies which have proven problems that can help sales forces and management. Enquiries to Mr Miller (director) on (0453) 040.

Joining Data Logic is Hamilton Rentals in Owen Jolly, who is appointed sales manager for the company's range of Mac Modems.

DIARY

SEPTEMBER 19-24 Industrial digital and microprocessor-based control systems. IEE. Vacation School at Balliol College, Oxford. Details from IEE, 01-240 1871.

SEPTEMBER 23-24 Information systems - analysis and design working party. BCS. Open University, Milton Keynes. Details Guy Fitzgerald, 01-854 2030, ext 377.

OCTOBER 5 The impact of the new technology on management. Speaker David Fairbairn, director of NCC. IDPM Scottish branch-British Institute of Management. Merchants House, 7 West George Street, Glasgow.

OCTOBER 6 Impact of new technology on management - challenges and implications of IT for the workplace. Speaker Ted Cluff, secretary general IDPM. IDPM Scottish branch - Institute of Management. Theatre, College of Commerce, Aberdeen.

SEPTEMBER 23-24 Introduction to Fortran. RCS Microsystems. Overbury Inn, Isleworth, Middlesex.

OCTOBER 6 Visit to Thames Valley University Computer Centre. IDPM & London to Oxford branch. Thames Valley Police Computer Centre, Kidlington, Oxford.

OCTOBER 12 Viewdata. Conference on the state of the art. Institute of Information Scientists WP and computer information special interest group. Details Mrs Bird on (01) 645 2000 ext 8611.

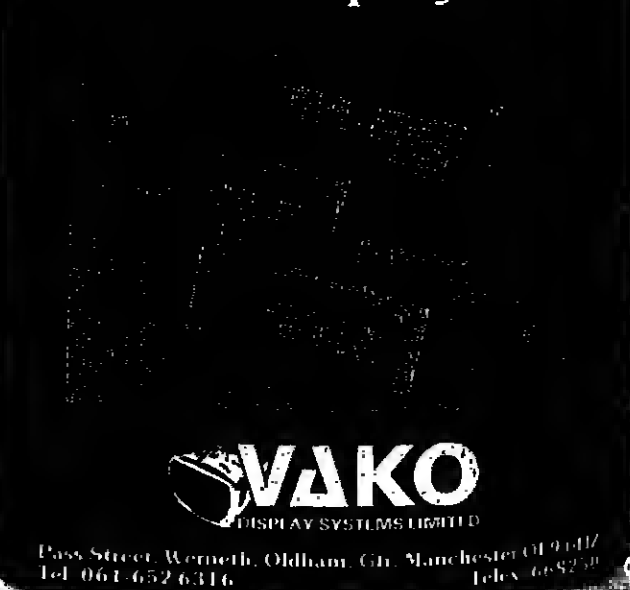
JANUARY 5-6 Viewdata. Conference on the state of the art. Institute of Information Scientists WP and computer information special interest group. Details Mrs Bird on (01) 645 2000 ext 8611.

CONFERENCES

The second Women and Computing Conference provides a forum for women in the industry to meet and share skills and experiences. As well as discussion on technical topics, wider social issues and practical problems such as applying for jobs will be dealt with. Women only may attend. The conference will be held in London on October 16-17. Fee is on a sliding scale up to £7.50 for the two days. Details and registration forms from Women and Computing Planning Group, 49 Crofters Mead, Croydon, Surrey.

The British Computer Society's Natural Language Translation Group is holding a meeting on machine translation dictionaries on September 23. Speaker is Professor Fred Knowles of Aston University, chairman of the Machine Translation Specialist Group of the Association of Literary and Linguistic Computing. The meeting will take place at 6.00 at King's College, The Strand, London. Further information from Walter Goshall, 68 Barrington Road, Bexleyheath, Kent DA7 4UW.

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WORKPLACE

No room for computers — so they're digging a hole in the garden

ONE might think that installing a pair of IBM 4331s in a converted cinema would be a hard act to follow, but in the case of Hill Samuel Life Assurance, you'd be wrong. The Croydon-based company is about to dig up a sunken garden surrounded by public pedestrian subways, excavate a new computer room, and replant the garden on top of it.

Until two years ago, Hill Samuel owned the Lowndes-Ajax bureau, and ran its work there in batch mode, sending vans loaded with printouts from the mainframes going to and forth. A move to on-line working resulted in the acquisition of two 4331s for installation at the Surrey headquarters.

The only room available for the machines lay in the basement — a 450 square foot private cinema, complete with sloping floor. The console was installed up on the 16th floor to enable the systems staff to keep an eye on things.

One advantage of having the machines in the basement of the building where the users worked was that all the VDUs could be connected as locals, rather than having to use modems. Not only did this free Hill Samuel from the vagaries of British Telecom, but the increased line speeds made possible a response time of better than one second.

But the larger part of the workload, 80%-85%, was still handled by the bureau in batch. Any build-up of work at the home site would mean a hardware upgrade, and the cinema was already packed as tightly as the engineering clearances of the 4331s would allow.

(For those of you unfamiliar with these devices, the backplane hinges out as a single unit, practically the same length as the processor cabinet itself. Both ends must be kept clear, one for the microcode disc drive, the other for power switching. The end result is that although the machines appear to be compact and space-efficient in the glossy brochures, actually installing the things leaves an inordinate amount of wasted space around them.)

The only course of action to Hill Samuel appeared to be moving the DP department to new premises — something the systems director John Wright has strong views on.

"The DP function is part of the company, it should not be a separate department. If we went elsewhere, DP would be an adjunct to, rather than a part of, the business. The company revolves around the computer, so moving it away made no sense."

So what else was there to be done?

"We decided to dig a hole in the garden," said Wright.

At the foot of the tower block housing the Hill Samuel offices lies what is euphemistically known as a sunken garden. Surrounded on three sides by roads is a hole in the ground with pedestrian subways running round the outside. The central area is grassed and is occupied by the company that here lay a possible location for the expanded computer room.

And so it was that the idea for the £1 million underground machine room came about. The area is large enough to house not only a computer suite with three 4331s plus peripherals, but a standby generator, two months' supply of oil, and batteries for the uninterruptible power supply.

What do the operators think of working beneath a flower bed? Well, there have been no complaints. There are no operators. Early on in Hill Samuel's in-house DP planning it was decided that the operatorless environment was the way to go.

"It's the right thing for us to have no operators," says production services manager Calvin Bird, "for the simple reason that we don't really have a job for them to do."

Wright concurs. "Good operators have a great technical capacity, but spend most of their time doing dull jobs. Take out the routine work and you can utilize that expertise in other areas."

"It's exactly the same with programming. You still need one or two experts for things like CICS, but the bulk of the work is boring

and mundane."

Hill Samuel is therefore making the most of user-friendly tools such as UFO which makes screen formatting a much simpler and less time-consuming task.

"Our aim is to get three times as much output with one and a half times the number of staff," says systems manager John Coward.

"We prefer to have a few good people rather than lots of average ones."

"There will soon be a lot of average programmers — the ones who can get by on a little Cobol knowledge at the moment — and we do not see ourselves taking on staff in this category," adds Wright. "More and more of the dull, routine tasks are being taken over by the machines or clerical staff. There will always be a need for really good technicians, but the



Calvin Bird of Hill Samuel. Under the grass is the future site of the assurance company's DP operation.

days of mystique surrounding computers are coming to an end."

To illustrate this point, Hill Samuel employs part-time staff to deal with the small amount of peripheral handling still carried out. Backups of the fixed disc drives to tape are performed by a retired policeman, a redundant British Telecom worker, and four married women.

None of them has a technical background, and the tasks they perform are prompted by the operating system in a user-friendly

manner. "I don't think they'd have accepted the job if they'd known what it was they would eventually do doing," says Bird, "but now they've got a job much more interesting than the run of the mill clerical worker has."

"They're perfectly capable people; they just don't want a career."

Output handling will be left to the users themselves — each department will have a printer and will only produce hard copy as and when required.

Another unusual feature of DP at Hill Samuel is the amount of autonomy enjoyed by the users.

"We see ourselves building up a kitbag of tools for users," says Wright. "A lot of the jobs are delegated to the users — the material department use APL with than getting us to develop GAT programs. They've taken it to ducks to water."

When the third 4331 is bought in 1984, there will be one machine

■ Turn to page 17

WORKPLACE

A hole in the garden

■ From page 16

running the online service, one on batch, and one for the development staff. There are 25 systems staff at present, increasing to 40 by next summer.

"The advantage of having separate machines is that you can have IBM engineers crawling all over one of them while still providing a normal service to the users," says Wright.

The machines are run 24 hours a day, seven days a week, with IBM engineering cover on prime shift only (and IBM is just across the road). Wright says that the hardware is very reliable and estimates the mean time between failures as two years.

"That means that one morning every two years we can expect to come in and find that the overnight batch runs haven't been done. We can live with that."

But with no operators, and not even a dedicated systems programmer, who reconfigures the system in the event of a failure?

The facilities group, part of the production department normally dealing with the user facilities, like APL, down tools and rush



WRIGHT... "DP is part of the company."

downstairs to throw the requisite switches.

"Everything is proceduralised," says Bird, "and we can reconfigure, re-IPL and get the service running again in 45 minutes."

In the event of a more substantial failure, Hill Samuel will have both warm stand at the Lowndes-Ajax bureau, and a cold standby site.

"The real problem would be trying to catch up with the backlog," he adds. "If we were down for three to four days, it would be like running up a down escalator."

Now, operations provides a genuine career path

The second part of our series on changing job functions and titles, by Les King.

TO the career-minded DP professional the expanding role of the computer operations department has been one of the most significant developments of recent years.

No longer a poor relation to systems and programming, computer operations can now provide a worthwhile and technically challenging career path leading to the most senior levels of data processing management.

Indeed, today's operations manager frequently enjoys a status equivalent to that of, say, the systems manager, and it is not at all uncommon to see staff at this level swapping between operations and systems development.

Additionally, the typical operations team has now shaken off the machine-minder image and is organised around the broader context of providing a total service (i.e. working computer systems) to

user departments. This has led to a much broader range of responsibilities including systems programming, database administration and communications network control.

A good example of these new responsibilities is the job of operations analyst, a position best described as the operations equivalent of a systems analyst.

Essentially, the operations analyst provides an interface between users (including the operations department, which is a user in this context) and systems development staff.

However, where the involvement of the systems analyst largely ends when a project goes live, the operations analyst has continuing responsibility for the support of production systems.

Why, I hear you ask, is there a need for operations analysts?

Unfortunately, it is a fact that computer systems, just occasionally, fail to work as advertised.

This may be for a variety of reasons including machine failure, incorrect data, programming errors or, possibly, because of an "R" in the month (seriously, many systems fail because of unforeseen and therefore untested conditions, such as a 53-week tax year).

In theory, such failures could be investigated by systems development staff although, in practice, it is extremely difficult, and quite dangerous, for an analyst or programmer to pick up unfamiliar work producing quick fixes to solve the problem.

The operations analyst, however, is a lack of all trades who co-ordinates all elements leading to the smooth running of the operations department and production systems.

He, or she, would normally be given specific responsibility for particular applications from the early stages of systems development when he would assist with the planning of machine loadings, data preparation requirements and other resources essential to production running.

Once systems testing is complete, the operations analyst, in his role as user department representative, co-ordinates acceptance testing and the creation of the production environment which includes JCL writing (and line running), the preparation of operations manuals and the definition of recovery/back-up procedures.

When the system is in production, the main function of the operations analyst becomes first-

line fault investigation.

Using available diagnostic tools, the essential task is to positively identify the source of the problem and to organise appropriate corrective action, calling in specialist expertise, as necessary.

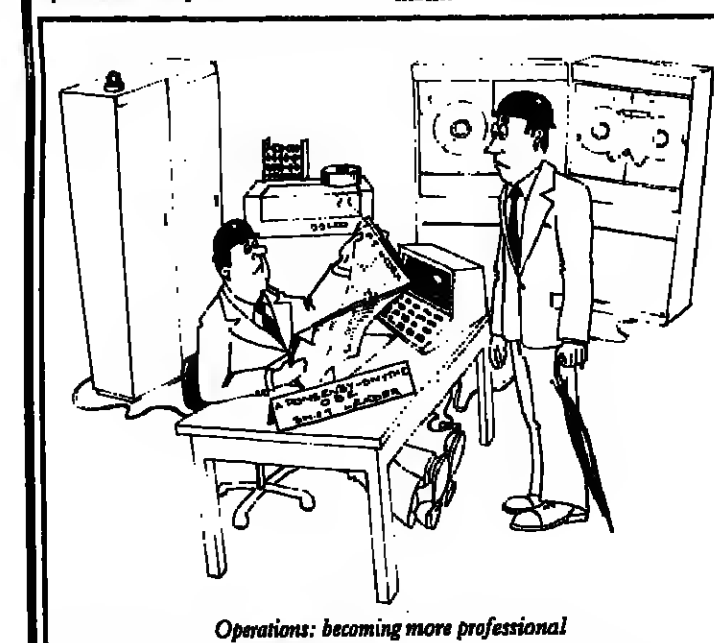
Direct action would typically include informal user training, correction of data errors and the recovery of corrupt files while systems, programming or hardware errors would almost certainly be "referred".

The job of operations analyst touches many other areas, including performance monitoring, disc space allocation and the communication of "suggestions" for systems enhancements to reduce user bottlenecks.

To obtain a shop-floor view of the operations analyst job, I spoke to Keith Fox, who worked for five years in the area of operations support before landing the plum job of communications network manager with the South-West Thames Regional Health Authority.

To quote Keith: "The role of the operations analyst is vital on any large computer site. When the user wants a system, he talks to the systems analyst and when he's got one, he talks to the operations analyst."

Keith also feels that the job is ideally suited to any operator with flair and initiative, the balance of all-round skills to be gained providing a natural progression into the area of operations management.



Workplace is compiled by Philip Hunter and Andrew Thomas.

At £299 it's very little. At 64K it's very large.



This is the new Commodore 64 Personal Computer.

It costs £299. Not bad for a brilliant piece of technology with a 64K memory.

But then, it's a Commodore.

And as one of the world's leading high-performance micro-computer companies, we're not exactly unknown when it comes to outstanding achievements.

The Commodore 64's nearest rival — if that's the word — costs over half as much again.

Here is the specification, a comparison with the Apple II, and a coupon.

The rest is up to you.

1. A total memory capacity of 64K, 38K, directly available to BASIC. When not using BASIC, a full 54K is available for machine code programs.

2. Interface adaptors will allow the use of a complete range of hardware peripherals including

disk units, plotter, dot matrix and daisy wheel printers, Prestel communications, networking and much, much more.

3. A complete range of business software including word processing, information handling, financial modelling, accounting and many more specific application packages will be available.

4. Other computer languages such as 100% UCSD PASCAL, COMAL and ASSEMBLER are being developed. Existing VIC and 40 column BASIC programs can be easily converted.

5. The powerful sound chip gives 3 totally independent voices each with a range of 9 octave. User control over music envelope, pitch and pulse shapes provides the ability to make your Commodore 64 sound like a variety of musical instruments, solo or in harmony.

6. 62 predefined graphic characters plus full alpha numerics with upper and lower case letters, all available directly from the keyboard

and displayable in normal or reverse video in any of 16 colours.

7. 40 column by 25 lines colour display. In high resolution graphics mode, a bit mapped screen gives 320 x 200 individually addressable pixels.

8. The dedicated video chip allows the use of high resolution multi-coloured "Sprites" (movable object blocks). Sprites can be moved pixel by pixel, independently of anything else on the screen.

9. Sprites can also be set up in 8 "layers" giving full 3 dimensional effects with, if required, automatic collision detection between sprites and any other screen object.

10. Machine bus port will accept ROM cartridges for many applications, including business, educational, home and leisure software.

11. A second processor option using the Z80 gives the Commodore 64 the ability to support CP/M*

*EXC. VAT - DETAILS CORRECT AT TIME OF GOING TO PRESS
*UPPER ONLY
C/M* IS A REGISTERED TRADEMARK OF DIGITAL RESEARCH, INC.

commodore

For more information on the powerful new Commodore 64, and the address of your nearest Commodore dealer, telephone or write to us at:

The Commodore Information Centre,
675 Ajax Avenue, Slough, Berkshire SL1 4BG.
Telephone: Slough (0753) 79292.

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PUZZLER

MY wife went to a sale last week. When she got back I asked, with some trepidation: "How much did you spend, dear?"

"Not wishing to answer directly, and knowing my penchant for puzzles," she replied in teasing fashion: "I came back with exactly half my money unspent."

"But how much did you spend," I persisted nervously.

"Well, I ended up with as many pennies as I had pounds before I went to the shop, and half as many pounds as I had pennies before, she answered cryptically.

How much money did she take to the shop? See page 54 for solution.

SYSTEMS ANALYSTS/PROGRAMMERS/DESIGNERS!

British TELECOM British Telecom Research Laboratories Research Study No 1

MAN-MACHINE DIALOGUE DESIGN

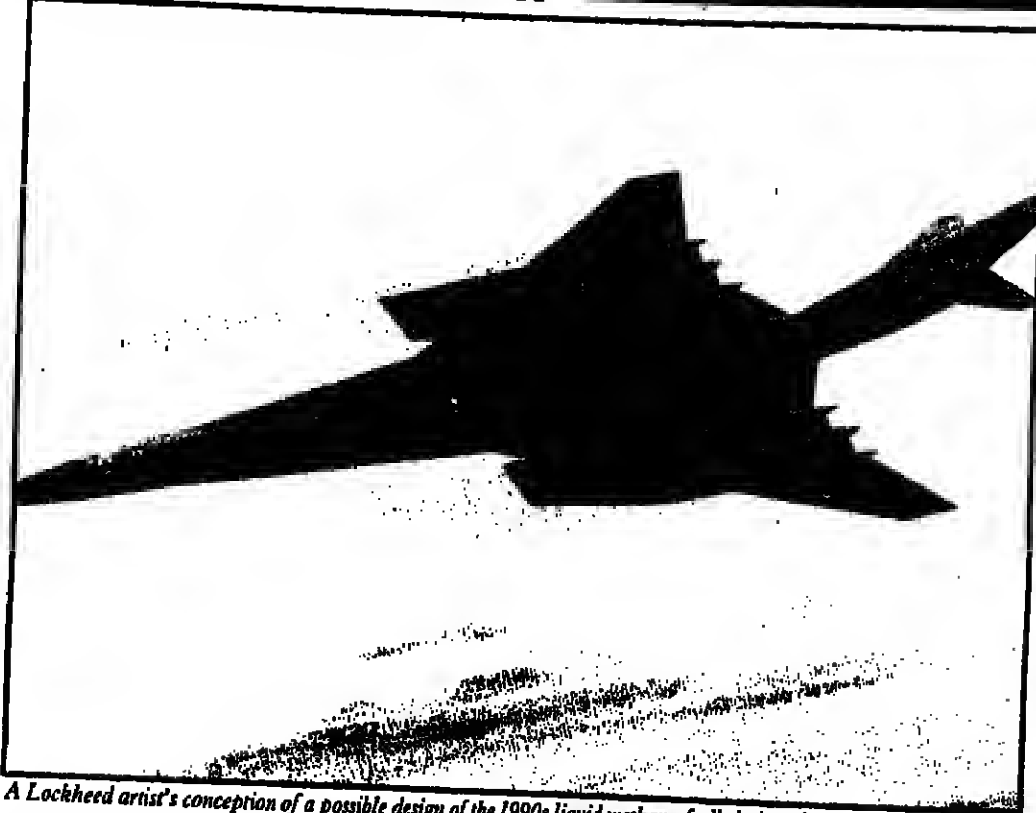
by Dr A. L. Kidd

This study provides a comprehensive review of the literature concerned with the design of interactive man-computer dialogues. Firstly, the problem of the man-machine communication barrier is introduced. The important aspects of user psychology are briefly outlined and the study stresses the need to create 'user friendly' computer dialogues, i.e. dialogues which are compatible with the psychological characteristics of the intended user population. Secondly, it sets out design principles, from the literature, for the development of more 'user friendly' computer dialogues in a wide range of applications.

Price: £8.50 plus 30p p and p. Cheques should be made payable to British Telecommunications and ordered A/C Payee

Orders to: Meridian Consultancy Services, TEL: 2, British Telecom Research Laboratories, IPSWICH, IP5 7RE, ENGLAND. Telephone: Ipswich (0473) 644639.

FARNBOROUGH SHOW



A Lockheed artist's conception of a possible design of the 1990s liquid methane-fueled aircraft.

You need computers to design 'em, to fly 'em, to land 'em

Kevin Cahill sees technology take off at the Air Show

IN the aircraft industry there is one thing you can be sure of. Whatever you do, you need computers.

"You need computers to design 'em, computers to fly 'em, computers to land 'em and computers to blast 'em," as one RAF man put it.

At Farnborough Air Show this year, there was a record collection of the computer-based devices needed to get an aeroplane together, to get it safely off the ground, and safely on to its again. There was also a record collection

of the devices, all computer driven, that you need if the way you want an enemy aircraft back on the ground is in tiny incandescent pieces.

Naturally enough there were a lot of micro-driven devices to hang out of aircraft so that you could turn anything you didn't like on the ground into hot little pieces too.

Amid all this destructive application of micros, mostly eight-bit, it was something of a pleasure to come across a number of devices which have at least as many civil as military uses.

Sadly, either the staff manning the missile stands did not know just what micros drove their deadly wares, or for security reasons would not name the computers.

However, the man on the Ferranti stand at least knew that the micro in the Ferranti tactical mission planner, called the Tacplan 2100, was an eight-bit device specially designed for the application by Ferranti.

Tacplan, written in Coral 66, is a clever way to work out the best route for an aircraft, tank or pre-routed missile, to carry out its mission.

Data on the route to be taken is entered into the system simply by placing a pair of electronically activated wires, contained in a neat plastic case, over the turning points chosen on a map, which is laid over the Ferranti Autoplan plotting board.

The system, which is floppy disc driven, carries a 256 Kbyte store of information on maps and terrain.

When the map being used is laid out on the plotting board, two reference points on the map, expressed in longitude and latitude, are entered in the system.

The co-ordinates and the map scale enable the system to establish the table so that the placing of the cursor is correctly translated into guidance information.

When the turning points in the mission are established, the system then prepares a flight plan, which is output primarily on to whatever form of input, map tape or solid state is to be used on the inboard navigation system.

In the course of establishing the mission route other data such as aircraft type, fuel carried, weapons load and so on, is also entered.

When the planning is complete a hard copy printout is prepared which can be given to the pilot, along with his magnetic tape cassette.

According to Ferranti, the system can be used to prepare a mission plan with 20 turning points, in under five minutes.

Manually prepared, the plan would take 20 to 30 minutes.

In modern battles, particularly those involving aircraft like the Harrier — employed in forward battle areas, with scarce fuel supplies and a high need for reaction and redeployment — the plan is indispensable.

So far the RAF has bought 77 of the systems.

At a more sophisticated level there is a rapidly growing demand for more advanced computer software in the field of flight simulators.

A complete simulator will include a moving platform with tilts, dips and rolls to give the trainee all the benefits of flight without the attendant risks to life and soul if he or she gets it wrong.

To drive the controls and the platform, and the graphics displays which a computer generates on the "cabin window" of an advanced military plane, an execution rate of over 10 Mc/s, 32-bit operations per second, is needed.

So far most simulators are micro frame linked, but General Electric's Link Miles Division started building microprocessor-based simulators in 1979.

The company says that the micro driven simulator was delivered by them last year to the Finnish Air Force to train country's pilots in the use of British Aerospace Hawk trainer.

But the most advanced developments in the simulator are in the area of computer-generated images.

This has given rise, as US Air Force official at Farnborough says, "to the 20 million simulations accompanied by the 50 million computer generated images device."

Despite the costs and the difficulties involved, both the military and the various companies involved in simulator development are spending millions of dollars in pursuit of ever more sophisticated image display.

Many pilots resent the amount of time they are now required to spend on the ground in simulator. But bosses take a different view.

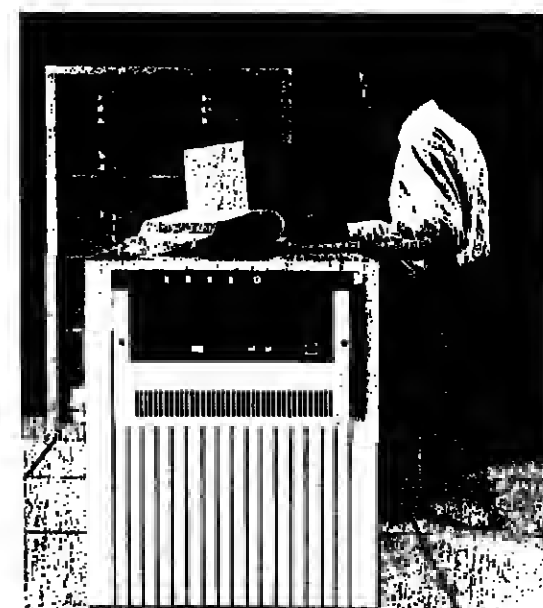
One of the officers guarding the Lockheed B1 bomber which flew to the UK for the first time for the Farnborough Show, pointed out that the plane had cost the best part of a million dollars in fuel alone to reach the UK.

"Ten hours in a simulator costs about 200 in electricity."

He did not mention the savings if the pilot flew the simulator into the ground.

For the plane at the show that would be about \$1.2 billion.

MOVE UP TO 32-BIT POWER? TWO SMALL FACTS FROM PERKIN-ELMER



For the system specifier and OEM, moving up to 32-bit is suddenly a lot easier.

Perkin-Elmer announce a major price breakthrough in 32-bit minicomputers — now you can have mainframe performance at a price below what you're probably now paying for 16-bit systems.

Incredible? Read on.

OUR NEW 3210A

Custom tailor the 32-bit system you want. Fully functional 32-bit processor, chassis mounted, with control panel and two communication lines. 512KB state-of-the-art, high density memory. Optional 30 or 56 ins cabinets, DC power system, air cooling, floating point processor, add-on memory up to 4 MB.

1-off price

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with 512KB memory

Generous OEM volume discounts

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A complete 32-bit minicomputer system just 30 ins high. Integrated cartridge disc drive, fixed and removable storage. Up to 4MB directly addressable memory. Supports up to 32 terminals with field expansion provision.

1-off price

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with 1MB memory, 32MB disc, OS, ten communications ports

PLUS

Field proven OS/32 operating system, high-level programming languages, a broad range of available systems and application software, worldwide sales and support network.

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- LOCAL AREA NETWORKS
- UNIX based software
- Configuration:
- PDP □ existing
- VAX □ expected configuration
-

INTELLIGENT TERMINALS

- Character set:
- Standard
- German
- French

MISTEL videotex system

- Configuration:
- PDP11/RSX11 □ existing
- Mini 6 □ expected

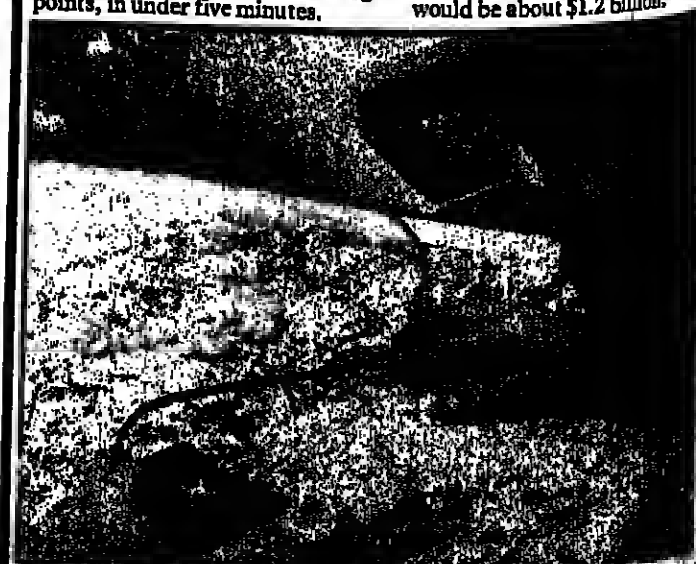
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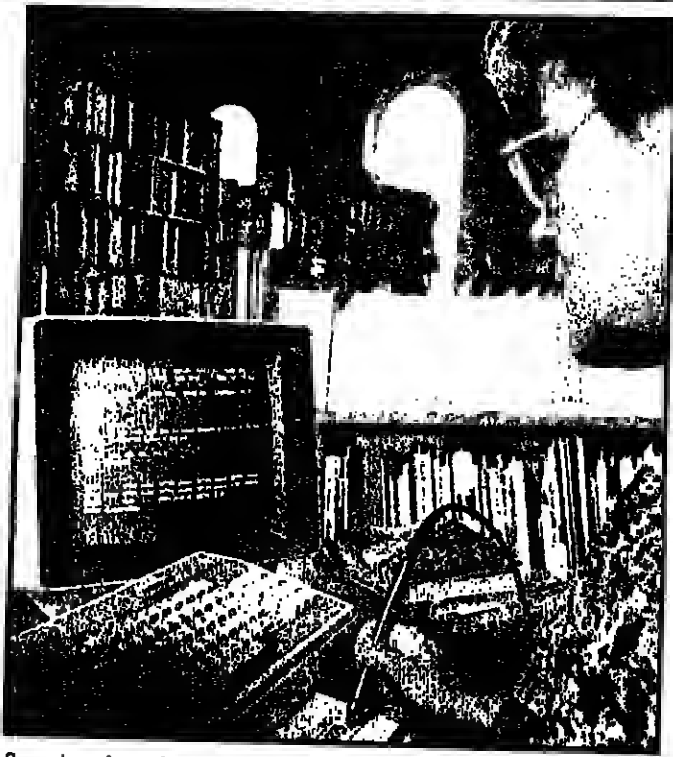
Plotting the plane's route on Ferranti's Autoplan

Bar code system for library

SOMERSET County Library is automating its service with an on-line computer system, and has chosen Photographic Sciences' bar codes for the task of labelling the 800,000 volumes currently in stock together with the associated record cards and the 90,000 new books acquired each year.

As the centre of its automated service the library is installing a Canadian-developed Genc 8000 system at County Hall in Taunton to be linked online to automatic checkout facilities in seven of its 33 branches and at HQ. In these selected locations, books will be checked in and out of the system by means of light pens linked to terminals. This scans the bar code on the book and the reader's card, automatically entering loans and returns into the main database.

The key factor in the efficient working of this system is the reliable input of data. Machine-readable bar codes were the obvious medium and Photographic Sciences, formerly Harland Data Systems, was appointed supplier. In addition to generating sequentially numbered bar codes, in high volumes, the company is able to image and print text on a variety of materials, including self-adhesive



Scanning a bar code to enter a book in the computer-based catalogue.

labels, to a quality unattainable by dot matrix or impact printers.

This was an important factor in the selection process, since the labels were required not only to identify books and readers via the light pen, they were also to be used in file creation, in being compatible with the existing Browne issue ticket system and in providing eye-readable information for staff and the public.

Present plans for the library envisage six terminals at the Bridgewater headquarters, to be used by the staff for the creation of the database, and a further 30 dispersed around the branches. Of these, three will be in public use.

Photographic Sciences (CW), Phoenix House, Amsterdam Road, Sutton Fields, Hull, North Humberside HU8 0XP. Tel: 0432 335366.

Delta network is aimed at Burroughs market

DELTA Data Systems has announced a network terminal system based on its recently released range of intelligent video terminals.

Named the Delta 2000 Series, it includes a configuration which is aimed specifically at the Burroughs B20 market and has a starting price of less than half that of the B20, says Delta.

The 2000 Series features communications facilities for handling Burroughs and ICL protocols and there are plans for adding IBM, DEC, Univac and others shortly. There is also a cluster control for up to eight workstations.

The video terminals at the heart of the new system are the Delta 2200 Series and the 2830, around which Delta has designed a systems concept to enable each to grow from a standalone terminal device to a network system according to specific user requirements.

Delta Data has designed the 2000 Series system and its inter-related software to provide an inexpensive starting point for network operations, so that extra functions and facilities can be added, when required, to allow easy progression to distributed processing.

Apart from the Burroughs emu-

lation with the 2830, Delta has aimed the system at new and existing network users requiring steady expansion, as well as to those seeking to increase the scope and complexity of the terminal task; at users of heavily loaded networks where the workload needs expanding without changing the mainframe; and at users seeking to avoid terminal redundancy when a mainframe change becomes inevitable, particularly when the change is to a mainframe of another manufacturer.

The Delta 2000 Series has applications at all levels of networking, ranging from a single display terminal on a communications line to an intelligent workstation incorporating mass storage printing and local processing facilities to clusters of workstations providing a variety of multi-end user text and data processing functions.

This applications flexibility is the result of a matched set of user friendly functions including full feature ASCII display terminals oriented for text and data entry/information retrieval, for forms mode data entry, or for message switching/telex networks; local storage on floppy or Winchester discs with Delta's own File Management System, giving block

mode access to the database; processing facilities using COBOL, BASIC, FORTRAN or user applications programmed in Basic, Cobol, Fortran or Pascal; hard copy printing locally or host controlled; communications control including protocol compatibility and multi-channelling.

The video terminals at the heart of the new system are the Delta 2201 - a dual code (bit and telex) terminal for message monitoring and preparation, capable for message switching, store and forward processing; Delta 2203 - a forms mode terminal for high volume, field data entry and validation processing; and the Delta 2830 - a Burroughs emulation terminal.

The Delta Disk Unit offers stepped storage options of up to 1.5MB on floppy disk; up to 18.7MB on hard disk; and a 30MB Winchester disk. It supports a wide choice of data entry and letter quality serial printers.

Delta Data Systems (CW), Swallowfields, Welwyn Garden City, Herts. Tel: (07073) 3881.

PRINTERS AND TERMINALS

Boris Sedacca opens this four-page feature with a look at the European scene

Distributed processing set for a fivefold rise

IT is no longer clear just what a terminal is. In earlier days, the old-fashioned teletype embodied everyone's perception of a terminal.

With printers, it is an easier matter. The basic requirement of a printer is that it provides hard copy output. But a terminal can be anything from a simple portable hand-held data capture system to an IBM 4300 series mainframe connected to a larger 308X series mainframe using the latter's extended architecture features.

Today, the terms "terminal" and "distributed processing" are almost interchangeable. According to a Eurostat survey carried out by International Data Corp, the distributed processing market was initially dominated by minicomputers, but clustered processing terminal systems now earn the largest part of this revenue.

The total distributed processing revenue from shipments for its three main sectors - minicomputers, small business systems and clustered processing terminals - will rise from \$500 million in 1980 to \$2.8 billion in 1986, says IDC.

After a slow start IBM's 8100, classed by IDC as a clustered processing terminal system, is beginning to make its presence felt in the marketplace. Some 800 clusters were shipped in 1980, but this figure will show a dramatic rise to 17,000 by 1986, or an annual growth of 86%.

"The decision to implement distributed processing remains firmly in the hands of DP departments," says IDC. "In less than 50% of cases were local users consulted."

The top 11 European vendors of clustered processing terminals together constitute almost 80% of the market. Philips is the major vendor with 15% of the market, but closely followed by Datapoint and IBM. IBM's position in the league due to the impact that the 8100 is already having in Europe.

The number of screens attached to a clustered processing system varies widely between vendors, ranging from 2.5 to 70 plus, but overall there are on average 5.5 screens attached to a system. In 1980 IDC estimates that 43,000 clustered processing terminal screens were shipped into Western Europe and that this will increase to 200,000 units by 1986.

The number of screens shipped into distributed data processing (DDP) usage is estimated to be 50% of total shipments during 1980 - a proportion which varies by country with France lagging behind the rest of Western Europe, while Spain and UK are the leading users.

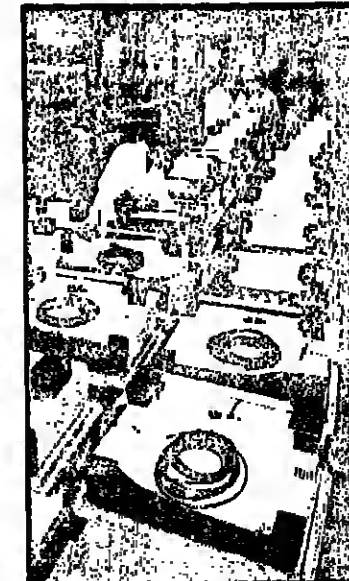
"One important consequence of IBM's introduction of the 8100 is that it has galvanised the industry to look even more closely at DDP. After the initial over-reaction to the 8100 gave way to the realisation of teaching problems, the industry may have to start gearing itself up again to a product that is here to stay for some time," says IDC.

"In all the country markets, IBM's strategy of putting in test or pilot machines and getting the user hooked is paying off overall even though some 8100s are being sent back. This is a phased approach in that a number of users have already gone through a trial/development phase and are now installing and running production machines. At the same time, new batches of users are entering on the preliminary phase and indicating

heavy order levels in some cases, should the 8100 prove successful.

"The IBM 8100 embodies the most radical development in computer system architecture from IBM's Data Processing Division (DPD) since the introduction of the 360 and OS in 1964. It has important implications which far beyond the 8130 and 8140 models which were initially announced in October, 1978."

The 360/370 architecture has many properties which seriously constrain its ability to support information systems in the future, says IDC. Changes in the cost of memory and logic circuit components, of secondary direct access storage, and of software de-



By far the largest market segment is the serial dot matrix printer.

velopment play a key role in altering design priorities. System architectures, which made sense 20 years ago, when hardware was more expensive and software development costs relatively lower, become indefensible and impractical for the future.

The OS operating system and the OS/VS versions have been built upon it, along with related software, such as CICS, TSO, and IMS, which provides capabilities not originally designed into the operating system.

IDC asserts that the architecture of the IBM 8100 and the DPPX operating system can be seen as a fresh start for IBM. The investment which IBM has made in developing the 100 and DPPX is the biggest it has made in a new architecture since the 360. And, despite the fact that the 8130 and 8140 are relatively small machines, the 8100 architecture is undoubtedly that of a family of processors of which these two represent the low end.

The most significant architectural feature of the 8100 hardware is the implementation of capabilities particularly important for the functioning of a real time, multiprocess, multiple-thread operating system. To a degree extending far beyond the 360/370 design, the 8100 contains features that both simplify the job of operating system software developers and also make possible the implementation of key operating system functions.

Turning to the printer market, IDC expects growth to average 22% per annum between 1980 and 1986. (See Figure 1).

By far the largest market segment is the serial dot matrix printer which during 1980 faithfully served the printer terminal market

with almost 200,000 units. However, by 1986 IDC predicts that the desktop will take the bulk of the shipments - some 660,000 units.

"One area of great uncertainty is how the future text processing market is going to be catered for. Undoubtedly there is a great growing demand for quality printout which is currently being satisfied mostly by serial character printers. However, the other technologies are aiming for a share of the market and there is likely to be a head-on collision as serial dot matrix printer vendors in particular strive to develop correspondence quality products. IDC expects that the latter should be winning through by the mid-80s as speed and price outweigh user reluctance in accepting "almost letter quality" output, especially in a mixed DP/WP environment.

"Ink-jet technology has not yet lived up to the great expectation which has caught the imagination of so many in the industry. After a few notable failures, including IBM's OS/6 offering, there are signs that more successful products are coming on to the market. Siemens is already achieving bulk shipments with its PT80 models and the Japanese are expected into this arena within the next two to three years. Long term success seems to be assured for this technology as the demand for graphics and coloured printing starts to build up in earnest during this decade," says IDC.

It adds that the line printer market is far from its death bed. Boosts in this area have come from the influx of the low cost, versatile dot matrix line printers where demand is most strongly felt in the higher end of the SBS market. IDC predicts that the market for such printers is also destined for success now that the teething problems have been overcome.

High priced page printers had shipments of about 300 units dur-

ing 1980 with IBM cornering 60% with its 3800. This will always be an area far removed from the volume shipments achieved with the other technologies.

Terminal printers are expected to have a slower growth rate - 13.4% a year in the longer term and 21.7% in the short term. During 1980 they dominated the printer market place with over 40% share of all units shipped. However, by 1986 the printers used with desktops will be in pole position with printer terminals dropping into second position with a market share of under 30%.

The serial character printer market in 1980 was cornered by Diablo, Olivetti and Qume who between them had over three quarters of the shipments. It is in this segment that the Japanese vendors - NEC, C.Itoh and Ricoh - have made their largest penetration, taking almost 14%. However, although they are expected to increase their share in the 80s they could come across a strong challenge from European vendors in the shape of Olivetti, Olympia and Triumph Adler. These European manufacturers have the opportunity of reaping economies of scale from their electronic typewriter activities where shipments in daisywheels are vast.

One area where low cost, low speed printers are making a large impact is in the serial dot matrix printer segment, says IDC. During 1980, the Japanese vendors made a strong showing capturing 11.6% of the total serial dot matrix printer market. They are expected to penetrate this market even further with Epson and Oki Electric leading the way.

In 1980 the US-based vendors held over 50% of the serial dot matrix printer market with IBM and Centronics achieving top shares. Unlike the aerial character market the serial dot matrix sector is littered with vendors. It is an area which has attracted a number of

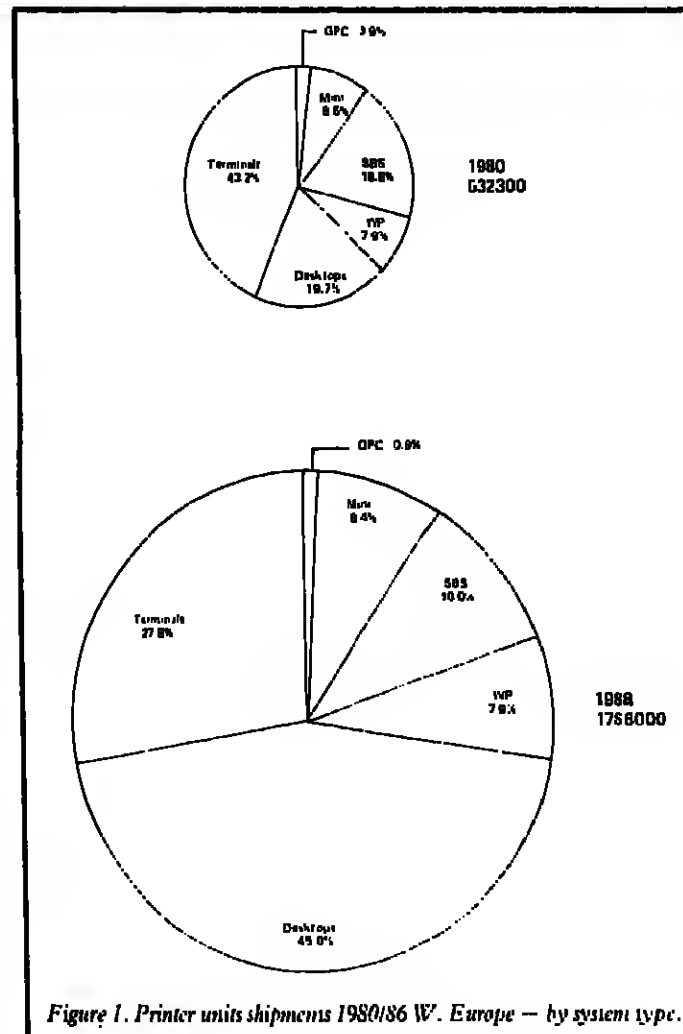


Figure 1. Printer units shipments 1980/86 W. Europe - by system type.

European vendors led by Mannesmann-Tally and Olivetti. Some of these produce serial dot matrix printers mainly for their own systems. They tend to be SBS vendors and include Olivetti, Logabax, Philips, Kienzle, Nixdorf and Triumph Adler.

It remains to be seen whether IBM will make a similar move to other vendors and produce a high density matrix printing device to offer corresponding quality matrix printing. With regard to the word processing market, IBM now manufactures its own daisywheel printer for use with the Displaywriter.

Another printer designed for use with word processors is the 6640, an ink jet printer, which uses continuous stream technology. This was the first ink jet printer used for computer output and has received only limited market success. It is used exclusively on IBM's

standalone word processing system, the Office System 6. In fact so many users did not want the ink jet printer that IBM was forced to offer the Qume daisywheel. Because the printer uses dot matrix technology some users were dissatisfied with its quality of output.

The IBM 3800 laser printer was first introduced in 1975, and has been reasonably successful. It was planned initially for online operation on the OS/VS systems. However the 3800 quickly acquired an offline magnetic tape. The printer uses continuous form paper and is generally regarded as a true workhorse.

In direct competition to 3800 is Xerox's 9700, which was an update on the 1200. The 9700 uses sheet feed paper and is able to operate as a word processor printer through a communications interface to the Xerox word processor.

Audiogenic Package offers low-cost graphics

A LOW-COST colour graphics package has been announced by Robocom, the North London robotics company.

Robocom says its package provides all the elements of computer aided design (CAD) from direct input origination of drawings through to a plotted output in colour, for less than £3,000.

Rob Welch, graphic designer and Robocom director, said: "Our objective was to create a simple but complete computer graphics package that would be easy to use by engineers and artists alike, without previous computer experience and at a price level that is affordable by almost everyone involved in the generation of graphics material."

The Robocom package is built around the company's Bit Sirk interactive graphics system, the Apple II Europlus 64K microcomputer with twin disc drives, and the new Hewlett-Packard 7470 A4 size plotter. It incorporates full technical drawing facilities including special routines for dimensioning and the execution of schematic diagrams.

It is not restricted to use with the 7470 plotter. It can support a wide range of plotters from A4 to A0 size and can interface with most of the major manufacturers' plotters including Calcomp, Wat-

son, Tektronix and Hewlett-Packard.

In addition, Robocom's design allows for step-by-step upgrades of the basic package into a sophisticated state-of-the-art system, ensuring that as a user's applications grow so the system can be expanded with simple add-on units to meet the new requirements.

The new package will be featured on the Robocom stand at the Design Engineers Show (September 28-October 1) and Computer Graphics 82 (October 19-21).

Robocom (CW), CIL Building, Goodwin Street, London N4. Tel: 01-263 3388.



User touches the screen to input information.

Video touch terminal

THE video Touch Terminal from Touch Technology is a new development of the company's established Touch Terminal. The new terminal allows real time video input to be displayed on the terminal screen and freely mixed with digital data from the host computer.

The Touch Terminal does not need a conventional keyboard. It is driven by the user by touching the terminal screen. This consists of a number of user-programmable "touch points". When the screen is touched, the terminal sends co-ordinates of the point that is touched to the host computer. The host computer can then interpret the information and take any desired action.

Touch Technology (CW), Woodlands Road, East Bergholt, Colchester, Essex. Tel: 0206 238181.

When operating in pure digital mode, the host computer would display to the user a menu of points to touch, so giving the user a choice of options. With the new version of the terminal, a video picture can be displayed, and the user can touch any part of the video image. The co-ordinates of the point touched will be relayed back to the host computer which can then interpret these relative to the known image.

The Video Touch Terminal costs £1,500 if only one unit is being purchased.

Touch Technology (CW), Woodlands Road, East Bergholt, Colchester, Essex. Tel: 0206 238181.

Subsystem intended for a variety of machines

LATEST hard disc subsystem for personal computers from Independent Computer Engineering (ICE) combines the British-made Rodime RO 100 Series 5¼in Winchester disc drive with Cipher's Quarterback ¼in cartridge tape streamer.

The subsystem, called the WDS 101, is complete with a cold boot card, and is available for Apple II, Apple III, and a variety of 286 and 5100 bus machines including Superbrain, British Micro, Gemini, Cromemco, IBM Personal Computer and Sirius.

The Rodime 5¼in Winchester disc drive, for which ICE is the exclusive UK distributor, provides formatted capacities of 3, 6, 12 or 20 Mbytes.

MTBF (mean time between failures) is 12,000 hours and there are no electrical or mechanical adjustments. Features include overlap seek, rotary head positioner and integral microprocessor control with on-board diagnostics.

The tape streamer uses standard ¼in 3M-type removable tape cartridges which can store up to 20 Mbytes of formatted data per cartridge. The tape speed of 90 inches per second allows a 6 Mbyte Winchester disc to be backed up on to tape in a little over a minute.

Independent Computer Engineering (ICE), 16/18 Littleton Road, Ashford, Middlesex. Tel: 0782 47271.



Apprentices demonstrate the Plessey telephone simulator.

Phone aid for children

A PUBLIC telephone system simulator for instructing educationally sub-normal children has been developed by Plessey.

The simulator consists of a specially adapted pay-phone, a standard handset and a control unit, and operates without being connected to the British Telecom network. All facets of the telephone system are accurately simulated to enable children to receive comprehensive instruction in the use of the telephone.

Apprentices developed the simulator after an approach by Winchester Special School where teachers wanted to familiarise pupils with the public telephone system. Previously, telephone instruction had proved difficult because children learning from public pay-phones could not be supervised adequately and often frequently occurred.

The Plessey technique entails demonstration and use of the telephone code and number system within the school. A main control unit, incorporating solid state black chip technology, is operated by the teaching staff and connected to a call box in another room. To the pupil the system appears to be a normal telephone installation but it has the added advantage of close supervision.

Various tones can be simulated on the control box and amplified for teaching and the children are given a pre-set number to ring. Even if the call is made directly the teacher with the control box may still talk to the child. Plessey Controls (CW), Poole Dorset. Tel: (0202) 675161.

Tape cartridge systems

A SERIES of multi-drive tape cartridge systems manufactured by Perex is being offered to OEMs through Sintrom Klinger.

Named the Perex Pétrole 9000 Series, the system employs up to eight BCMA 46 (ISO 4057) cartridge drives connected to a single controller/formatter. Using 6,400 bpi drives and DC300X cartridge, this translates to a maximum formatted data capacity of 120 Mbytes per system.

The controller, accessed each

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PRINTERS AND TERMINALS

Suppliers of dot matrix printers must offer more functions or lower prices . . . Ken Salmon reports

A revolution sparked by multi-function machines

THE time-honoured image of the computer printer has changed little over the years at an initial glance. It is still printing letters, numbers and symbols on to endless reams of fan-folded paper, albeit more reliably today than in the past.

Recently, however, a printer revolution has been quietly taking place. This has been precipitated by the large number of new applications areas being opened up by increasingly sophisticated mini and micro systems.

It now appears that the days of the simple printer, capable of printing only simple alphanumeric characters, are numbered. A whole new generation of printer products is available to complement the multi-functional nature of today's computer products.

After all, it is really necessary to purchase both a daisy-wheel printer for final copy and a serial dot

matrix printer for high-speed drafts, when there are dot matrix machines which will produce draft copies at about 400 characters per second (cps) and acceptable correspondence quality print at a speed of about 100 cps.

There will, of course, be those

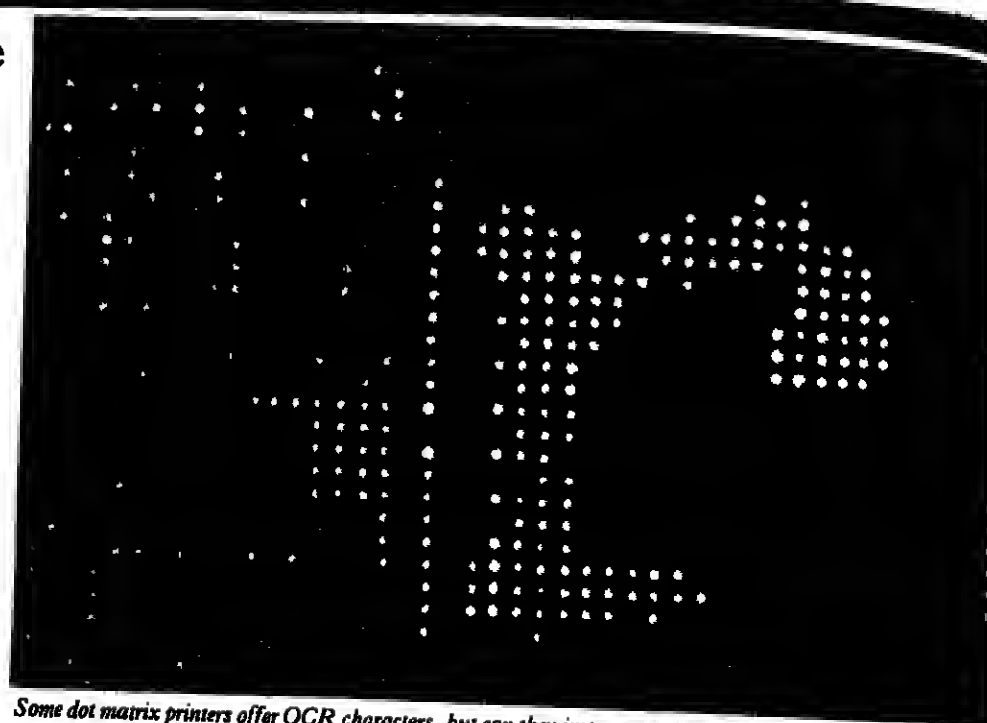


who will always require the very high quality print produced by a daisy-wheel and who are ready to accept the low speeds of such devices. But it is now becoming difficult to discern without the use of a magnifying glass that dot matrix correspondence quality is, in fact, dot matrix. The dual-purpose data

processing/correspondence quality dot matrix printer at the price of single machine and occupying the space of a single machine has well and truly arrived.

This is only a part of what is now being called multi-functionality. Hand-in-hand with the ability to print high quality correspondence characters goes a whole host of paper handling facilities such as automatic front-feed devices and hopper-based sheet feeders to enable single sheet letters to be handled effectively and efficiently.

Many of these single sheets are pre-printed with logos and other paraphernalia, and it is sensible for the printer prints these while it is printing the main copy. In fact, most dot matrix printers of the new generation are capable of graphics printing in one form or another, so providing the user with the choice of using pre-printed forms or printing the letterheads



Some dot matrix printers offer OCR characters, but can they improve on current rejection rates?

himself. There is a lot of activity in the field of graphics, and it may be significant that 15 leading companies, among them DEC, Tektronix, Intel, ICL and Mannesmann-Tally, have adopted two new graphics standards based on ISO guidelines. One of the latest industry buzzwords is "business graphics"

which means the computation and visual representation of business statistics. These are presented in a clear and concise manner to enable one to grasp information in picture form rather than having to plough through mountains of figures.

Business graphics can be significantly enhanced by introducing colour into the output. This is a function that dot matrix printers are well suited to. Two-colour printing in black and red has been around for many years, but only recently has four-colour printing been available with red, blue and green in addition to black.

When one thinks about the way in which colour images are formed in glossy magazines, and even television, the full impact of what dot matrix technology can offer is realised.

Another area to which dot matrix technology can be applied is in producing optically-readable data. There are two major systems in widespread use - barcodes and OCR characters. Printers exist which will produce barcodes and OCR characters in addition to normal printing.

Much of the above refers to the flexibility and multi-functionality of serial dot matrix printers - printers with a single head moving horizontally across a sheet of paper. But dot matrix-based line printers have been available for some time, and it is well within the capability of a 600 line per minute line printer to offer dual data processing/correspondence quality printing, graphics, host-defined symbols loaded into the printer through the interface from the host, colour and variable density plotting as well as barcodes and so on.

The concept of the single printer has therefore changed and irrespective of whether it is a simple printer, a medium-sized printer or a line printer, its functionality can be offered to suit significant additional use.

Ergonomics is playing a significantly larger influence now in the design of products than ever before. Machines are now being increasingly used out of the office environment in the office environments they must at noise levels well below limits of office typewriter.

Ease of operation is a prerequisite in today's office. Simple forms and power on/off and easy-to-change cartridges are features not only in serial printers but also in line printers.

The reliability of printers has been improved immeasurably in recent years, particularly in more innovative major manufacturers have consolidated mechanical and electronic parts. Despite these advances printers are fundamentally mechanical devices and much emphasis is now placed upon the serviceability of these machines.

There is also a prerequisite for avoiding preventive maintenance by incorporating sophisticated diagnostic capabilities into machines to enable servicing by replacing modules.

In conclusion, today's dot matrix printer is a highly sophisticated multi-functional device providing the user with a variety of functions many of which can be incorporated in the same machine.

Ken Salmon is Southern and account manager for Mannesmann-Tally.

PRODUCTS 2



The Bôwe 308 guillotine from Alacro.

'34% more throughput'

A GUILLOTINE, the Bôwe 308, for separating computer stationery into individual sheets is announced by Alacro. The Bôwe 308 is a mid-range model, replacing the Bôwe 303 which has sold 4,000 units since its introduction in 1974. The 308 will operate at throughputs of between 10% and 34% more than the 303 depending on form size and application, says Alacro.

The new Bôwe 308 will be sold exclusively in the UK by Alacro. The Bôwe 308 can handle form depths from 1/6th of an inch to 16 1/2 inches in 1/6th inch increments, the depth being selectable by the user. The width of the continuous web can be up to 510mm. Accessories available on the Bôwe

308 include margin trimmers to remove the sprocket holes; a centre cutter for slitting the computer stationery into two and either a dropping or conveyor stacker to accept the output.

A major feature of the Bôwe 308 is its ability to use OMR (optical mark recognition) techniques. The computer can print standard characters on the stationery. These can be optically scanned by the Bôwe 308 and interpreted by microprocessor to control batching.

Price of the Bôwe 308 guillotine is £4,995. Alacro (CW), Iveagh Avenue, North Circular Road, London NW10 7UJ. Tel: 01-965 9311.



The WY100 terminal.

Ergonomic terminal

DESIGN of visual display terminals has been the subject of much controversy recently, particularly among the medical profession, so the announcement of the new Comart VDU, offering a full range of ergonomic features, is an important event, claims the company.

The WY100, developed by Wyse Technology, is a powerful, full feature, low cost terminal. Some of the more important ergonomic features include a fully rotating and tilting display, which is adaptable to individual requirements and a 12 inch green phosphor screen, to reduce eye strain.

Comart Limited (CW), Little End Road, Easton Socon, St Neots, Cambs. PE19 3JG. Tel: (0480) 215005.

Lamp kills bugs in a/c

A BACTERICIDAL lamp introduced by Hanovia is designed to eliminate any possibility of bacteria and viruses being transmitted through air conditioning systems or barrowing in ventilation ducting in offices or factory buildings.

There is growing concern that the spread of common infections, such as flu, may be connected with the increasing use of air conditioning.

To combat this problem, Hanovia's bactericidal lamp is specifically designed for installation in air conditioning ductwork and retrofitting to existing ducts is simple according to the company.

The unit consists of a tubular, 560mm long ultraviolet lamp and an electrical control box which is fitted outside of the duct. Cool running, the lamp is mounted on a pre-drilled backplate/reflector via spring connectors. The high tension transformer control unit operates on a standard 240V input and supplies the lamp through 1m cables.

Ultraviolet light is emitted by the lamp at a specific wavelength of 254nm. This spectrum of UV radiation will positively kill or inactivate all types of micro-organisms including bacteria, viruses and moulds, says Hanovia. Whether one or several lamps are required for effective air sterilisation will depend on the duct dimensions and air flow rate.

Hanovia (CW), 145 Farnham Road, Slough, Berkshire.

Ramtek raster display costs 35% less

A DISPLAY system that uses a 16-bit microprocessor to offer high-resolution, high performance colour graphics and imaging capability in a compact, low-cost package has been introduced by Ramtek.

The RM-9460 display system offers all the features of Ramtek's RM9400 family but is priced starting at 35% less, says the corporation.

Ramtek's first 16-bit-based system, it utilises the MC68000 CPU and 64K RAM technology to achieve greater performance in a smaller, less expensive package.

Use of multiple memory processors allows the RM-9460 to perform independent graphics operations, such as local pan and zoom, on multiple workstations. Other features include context switching, image enhancement, de-cluttering, co-ordinate transformation and split screen/clipping. Interactive device options in-

clude general purpose keyboards with up to 40 function keys, joysticks, trackballs, light pens, digitising tablets and digital mice.

The RM-9460 offers resolution of 1280 x 1024 picture elements (pixels) and up to 32 refresh memory planes. Vector writing speeds are in excess of 16K vectors per second, based on an average vector length of 50 pixels. The system can display up to 1.3 million colours simultaneously from a palette of 16 million.

Like other members of the RM-9400 family, the RM-9460 allows for a broad range of graphics and imaging applications. Ideally suited for such applications as CAD/CAM, VLSI design, command and control, image processing, process control and mapping, the RM-9460 also can be used for multi-spectral imaging applications such as remote sensing and many types of sophisticated research programs.

Current users of Ramtek's Z80-based RM-9400 display generator

can easily upgrade their systems to 9460-level capability by adding an MC8000 CPU card developed by Ramtek.

The card is priced at £5,220. In addition, a Z80-based version of the RM-9460 is being offered for RM-9400 users to protect their investment in customised software that runs on the eight-bit microprocessor.

The RM-9460 starts at an end user price in the 18-20 thousand range, for a 1280 x 1024 x 8 plane system, with significant discounts for volume purchasers and OEMs. The 9460 is deliverable 60 days after receipt of order.

Ramtek is a pioneer in the design, development and manufacture of colour graphic computer displays for graphics and imaging. The company also offers industrial monitors and colour hard copy devices.

Ramtek UK (CW), Times House, Station Approach, Rushlip, Middlesex HA4 8LE. Tel: (08956) 762112.

Fireberd takes off

CODEX (UK) has announced the launch of another new instrument in the Fireberd series of digital error analysers used for checking out data communications networks.

The microprocessor-controlled Fireberd 2000 features the most flexible data interface system on the market, says Codex. It has 13 popular interface module options allowing the instrument to operate from low speeds (100 bps) to the much higher 10Mbps. Versatility such as this allows a single Fireberd 2000 test set to be used for all data circuit testing applications. Importantly for the UK market, the ASCII interface for the RS-232 output printer is incorporated within the unit, allowing Codex to offer the RS-232 interface and printer controls as standard.

Applications include error analysis to check communications link quality; long-term testing with printout for isolating difficult communications circuit problems; and identifying terminal equipment problems as against communications equipment problems.

Codex (UK), (CW), 114/116 Thornton Road, Thornton Heath, Surrey CR4 6XB. Tel: 01-689 2101.

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Have fun with your computer...

MicroPhobia. Martin Honeysett. £2.50 (paperback), £4.95 (hardback). Century Publishing Co.

THIS is a superb book of witty, topical and penetrating cartoons by the well-known media cartoon-

ist Martin Honeysett, whose work has appeared in Punch and Private Eye.

As in his newspaper cartoons, he has great sympathetic insight into human foibles and weaknesses, but is also merciless in exploiting

them in the name of humour. The result is a hilarious collection of situations which are only a fraction removed from actual scenes encountered every day, and many are a logical conclusion to the direction in which technology will move if not kept under control.

The undertakers cartoon (illustrated) might seem far-fetched, but somewhere in the country there is probably an undertaker busy installing a home computer to run his accounts system, and stock control usually follows in the footsteps of ledger systems.

"How to survive your computer", the sub-title of this book, is rather tongue-in-cheek, because Honeysett has endowed his computers with endearing human characteristics. An emaciated personal computer sitting in the kitchen is said to be the result of a housewife's diet programs, and an exhausted television set has been

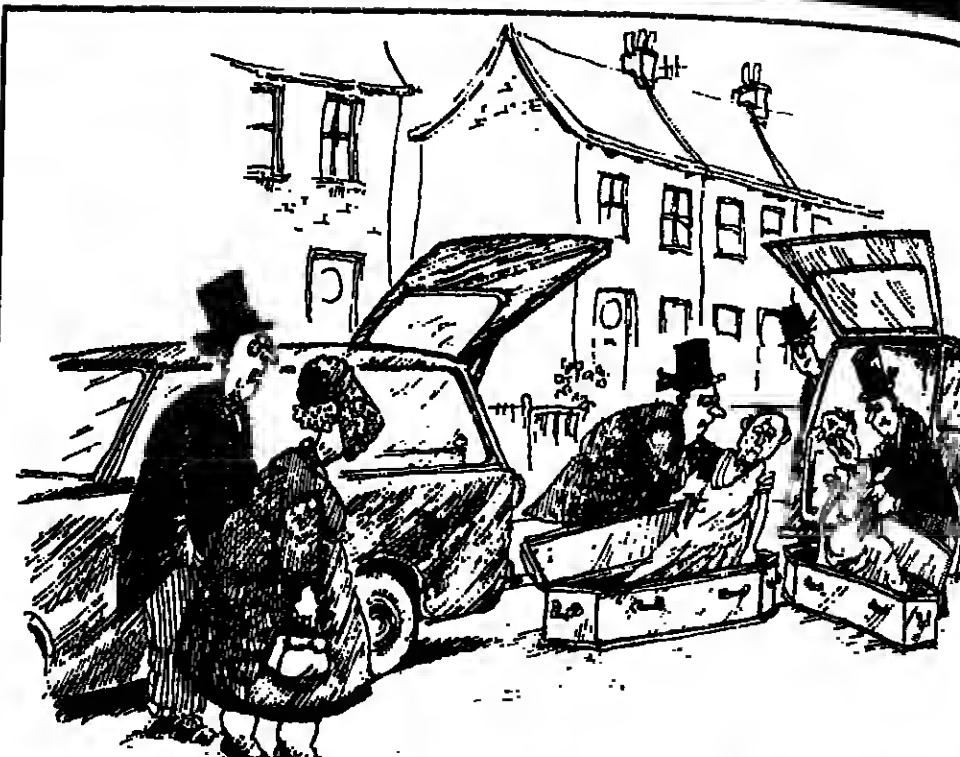
playing squash with its owner.

The book covers all aspects of the technological revolution, including video, telephone answering systems and viewdata, and

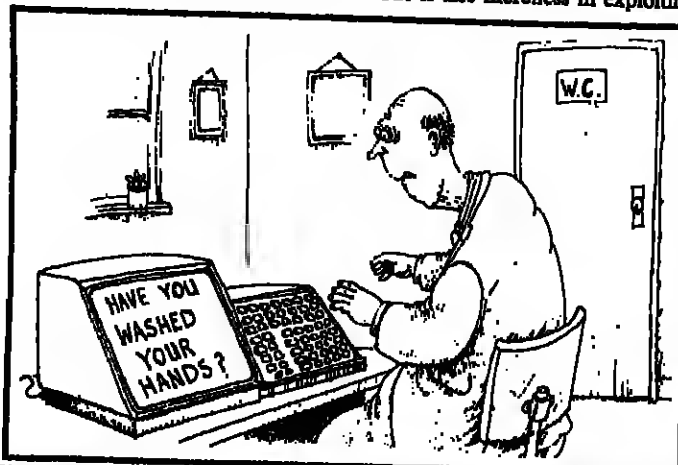
relates them to issues of the decade. Unemployment, space invaders in pubs, divorce, strikes and technology in schools all come out for an airing.

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Some old favourites re-issued

Writings of the Revolution. Selected Readings on Software Engineering. Edited by E. Yourdon. 460pp. Yourdon 1982.

THIS is a companion volume to Yourdon's earlier collection, *Classic in Software Engineering* (Yourdon 1979). It consists of 25 reprinted papers, selected by Yourdon and divided into seven sections, each with a short summary introduction.

Any collection of this type mainly reflects the background and preferences of its editor. Your reviewer found a number of old favourites here, some new material and a few surprising omissions; a number of less familiar contributors rub shoulders with such authors as Belady, Dijkstra, Hoare, Knuth, Lehman, Parnas and Wirth.

As one would expect from such a list, there is some fine material here to justify the somewhat extravagant title. However, the collection is highly selective, and necessarily so when it deals with a wide range of topics, from analysis and design techniques, through proofs of program correctness, to project management, metrics and human conceptual limits.

As a representative introduction to the technical literature over such a wide field the volume has much to commend it. It is well produced and pleasant to use, but unfortunately lacks both an integrated list of references and a general index.

Peter Wallis
University of Bath

A valuable aid to software production

Software Configuration Management. J. K. Buckle. 100pp. Macmillan 1982. £11 (hardback), £5.95 (paperback).

ALTHOUGH there are a number of books on software engineering, software life-cycle and software development methodologies, few handbooks on the practical detail of organising software projects. This is why that Buckle has chosen to write this book will be valuable to those involved in software production, whether as single programmers or in running large teams.

The author draws both on his own experiences as a coach and on the experiences of his managing major software projects elsewhere. The methods suggested are applicable in almost any environment, being largely independent of programming language, development methodology or project size. After introducing the basic concepts, the book deals with document production and design control, reviews, inspection, testing, validation and maintenance. Applicable software is discussed, as are the overall organisation required for the application of the suggested techniques. As the author freely admits, much of this book is rather tedious reading. However, many valuable ideas are presented and anyone involved in software production who reads the book is sure to find new ways of improving its effectiveness as a result.

Distributed DP trends

Distributed Database Management Systems. Olin H. Bray. Lexington Books. ISBN: 0-669-03396-0, 163pp.

THIS book by Olin Bray is intended to provide an introduction to distributed database management systems (DDBMS) and to point out some of the current areas of development and research. The text is oriented towards DP practitioners and students — particularly those having some background knowledge of databases.

The work is divided into 10 chapters. Following a brief introduction, Chapter 2 discusses the

aims and objectives of the technology and the current software approaches to the solution — the Codasyl and the relational methodologies. There are 10 chapters on communications and processing. The chapter on communications is particularly relevant since it presents a discussion of the recent ISO Systems Interconnection Model. Those who use this book will find it well organised and easy to read. They will also find the bibliography of interest.

Philip...

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The UK Headquarters of a leading international Systems Supplier and Consultancy is currently seeking additional Consultants for its offices in Central London. Suitable applicants will be aged 25-35 years and educated to at least degree level. Your technical experience, probably gained within a consultancy environment, should include working on several major projects based around DEC PDP11 or VAX11/780 hardware. Applications areas of interest will be Data Communications, Mainframe, Office Automation or Distributed Processing. Since these positions will involve a high degree of client liaison, you will be expected to be personable and possess good personal communication skills. In particular our client will be seeking candidates who demonstrate an innovative approach to problems and the ability to act on their own initiative. Ref: L/37/C

Real-Time Applications

London/EEC: Salaries to £14k

A highly successful British Systems and Software House has outstanding opportunities for real-time software experts from the UK and EEC. Applicants should have a minimum of 3 years' experience in real-time systems, preferably in the areas of Data Communications and Networks, Message Packet Switching, Process Control or Defence. Candidates who demonstrate management potential will, of course, be considered for the more senior positions. Ref: L/37/D

Process Control Systems

London & Home Counties: Salaries to £11k

Systems Software Engineers, with between two and five years software design experience are urgently sought by a major supplier of micro-based industrial control systems. All applicants should possess at least one degree, preferably in a numerate discipline, and be fluent in an Assembler and a high-level block structured language. There is a

strong preference for candidates with exposure to Z80 or T.1 9900 hardware especially where these have been utilised in tightly or loosely coupled networks. Good verbal and written skills are required as there will be an element of customer contact during design studies and commissioning. Ref: L/37/E

Robotics Software

London: Salary to £12.5k

A supplier of Robotics Systems has a number of extremely rare opportunities for Robotics Software Development Engineers to join its Central London Headquarters. All candidates must offer a minimum of 8.5c degree, preferably Electronic Engineering or Computer Science. Preference may well be given to those who have post first degree experience either within academic (M.Sc. or Ph.D.) or industry. All candidates should demonstrate an appreciation of the theory of

robotics technology and also have a real desire to participate in the utilisation of robots within a mass production environment. There is no stated hardware or software preference but clearly you should have an in-depth knowledge within one or more of the following specific areas: tactile and automated vision sensors, object and shape recognition, artificial intelligence, laser scanning, speech synthesis and image processing. Ref: L/37/F

Micro S/W Development

Cambridge: Salaries to £12k

Programmers and Software Team leaders are urgently required to assist in the development of applications and systems software for a new generation of micro-computers. Successful candidates for the positions of Team Leader will be fluent in a high-level, block structured language and have specified and implemented at least one compiler. Working in-house, their responsibilities will include the design, development and commissioning of systems software and the evaluation of commercial packages submitted by sub-contractors. Programmers will also be expected to offer fluency in a block-structured language and, preferably, have gained the majority of their post-graduate experience on micro-based systems. Ref: L/37/G

Navigation Systems

Inner London & Home Counties: Salary to £12k

A highly regarded supplier of precision instruments and electronic devices is seeking several Software Development Engineers for either its Central London support facility or its Thames Valley-based Research & Development Laboratory. Suitable applicants must be numerate graduates who are currently involved in the design and development of micro-processor based control systems. Practical programming skills must include total fluency in one of: Pascal, Fortran or Macro. Candidates should have the ability to resolve complex software problems for end users demanding total reliability or where operating conditions are not necessarily conducive to high technology products. Ref: L/37/H

Lis No: 35/5013

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They seek ambitious confident people, who appreciate a challenge, and are prepared to

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A good communicator with programming experience in COBOL and FORTRAN on IBM and DEC II mainframes, seeking to combine this with his/her knowledge of printing and publishing practices to resolve customer/system problems and play a key role in guiding future developments. Anticipated age, consistent with the experience requirements, is mid 30's.

Specialists - Software Systems and Electronics c £9,500 - £11,500

Confident persons with several years software/hardware design experience, ideally including DP/text and line printing with a data communications bias and looking for a central role between the design organisation and the customer. The applicants should have several years experience in the development of digital equipment and control systems and prepared to apply this to all aspects of customising printing systems to the European multi-national market. Specific experience in the following areas is desirable: telecommunications, word processing, typography, micros.

Travel to the USA and Europe will add spice to the more senior jobs. A working knowledge of European languages would be very useful. Successful candidates can expect a benefits package and career prospects they would associate with a major multi-national company. Relocation assistance will be provided as appropriate.

Write with a full C.V. in the first instance to Robert Leake, Managing Director, Robert Marshall Advertising Limited, 44 Wellington Street, London WC2E 7DJ, quoting reference CW.



Please list separately any companies to whom you do not wish your application forwarded.

PRIMAX COMPUTER SERVICES

- SYSTEMS ANALYST** E. Mag. A minimum of five years' experience in a commercial IBM environment is required for this position and a good grounding in CICS is essential. London Ref. 100A
- PROG/ANALYST (1-2)** E. Mag. One-three years' solid IBM Cobol to work on commercial applications for a major company. Knowledge of CICS would be helpful. London Ref. 1208
- ANALYST/PROGS** E. Mag. With two-three years' solid IBM Cobol and CICS in a commercial environment. London Ref. 100B
- PROGRAMMER** E. Mag. An interesting opening for a solid Burroughs programmer to work with and develop for the dept. Should have some exposure to systems and users as the job will entail analysis and user liaison. Knowledge of DMSII, CANDE, LINC would be useful. London Ref. 142A
- ANALYST/PROGRAMMER** E. Mag. Two-three years' HP3000 experience using Cobol. Must have good exposure to systems work. Home Counties/London Ref. 106A
- ANALYST/PROGRAMMERS** E. Mag. Around three years' experience in IBM Cobol, CICS and DL1 will be necessary to fill these demanding positions in the banking sector. London Ref. 107B

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Welwyn Hatfield District Council

Senior Programmer

Salary up to £7,137
Pay award pending

Required to participate in the development of the property database using IDMS software, a successful applicant will ideally have 2-3 years' COBOL experience, preferably with VME2900 and also have IDMS experience although training could be provided.

The person appointed will also play a major role in the further development of interactive word processing, cash receipting etc., providing both technical skills, consultancy and training.

Programmer

Salary up to £6,333
Pay award pending

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UNIVERSITY OF LONDON GOLDSMITHS' COLLEGE

Applications are invited for the following new posts: connection with the installation of a DEC VAX 11/70 computer to provide computing facilities through the College:-

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Applicants should have experience of programming in BASIC, FORTRAN, PASCAL and of editing users. They will be expected to provide programming support to members of staff and to assist users to find appropriate solutions to their computing requirements.

Salary within the range £7,125 x 6 increments to £8,615 per annum inclusive.

Write for further details to the Personnel Office, University of London Goldsmiths' College, New Cross, London, SE14 6NW. Closing date for applications 1st October, 1982.

NORTH STAFFORDSHIRE POLYTECHNIC

Faculty of Computing, Humanities and Science, Department of Computing

SENIOR LECTURER/LECTURER GRADE II IN COMPUTING

Applications are invited for the post of Senior Lecturer/Lecturer Grade II in the Department of Computing. Candidates should be able to teach specialist areas of computing. Honorary Degree level subject to Processing, Systems Analysis, Information Systems, Database, and applicants with other relevant computing experience in computing will be considered.

Salary Scale: Senior Lecturer: £10,175-£11,815 (Inc £1,210) Lecturer Grade II: £8,865-£10,175 (Inc £1,210)

Application forms and details may be obtained from the Personnel Office, North Staffordshire Polytechnic, College Road, Stoke-on-Trent ST4 2DE. Tel: 0902 46651, Ext. 287. Closing Date: 1.10.1982.

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The immediate requirement is for a first class production controller with the ability to foresee potential problems within production systems and neutralise them before they occur.

Experience must include liaison with users, including systems development, the creation and maintenance of OS or MVS JCL and the investigation and correction of application systems failures. Previous exposure to VSAM, VM/CMS or operational analysis would be an additional bonus.

HSLA offers a competitive salary plus a valuable benefits package which includes non-contributory pension scheme, productivity bonus, mortgage subsidy scheme and flexitime. For further information please contact Pat Barnes (24 hr answering service) quoting ref: CW/119

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Applications are invited for two posts as RESEARCH ASSOCIATES to work on a SERC sponsored and industrially supported project which will concentrate on various aspects of microprocessor control and the use of intelligent robots in manufacturing systems. Applicants should hold a good honours degree or equivalent preferably with industrial experience in either the application of digital systems or the design of production systems. The successful applicants may be promoted to regular posts at a higher degree. The posts are tenable for up to three years at a salary within scale £6,576 to £12,615. Write giving particulars to Dr. R. H. Wootton, Department of Engineering Production.

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Focus on Analysts & Programmers

The NLA Tower in Croydon, the Image in our binoculars, is the home of Hill Samuel Life Assurance (HSLA), a member of the famous Hill Samuel Group (merchant banking, insurance, pensions, shipping). HSLA is about to expand its computing power significantly, to cater for the corporate systems needs into the 1990's. A whole new range of systems is to be developed for users, both directly by the systems and programming group and by the application of users tools such as APL, report generators etc. Hardware will be dramatically increased to a triple processor installation, two IBM 4341's and a 4331, and the plans to house it focus upon a dramatic new underground, ultra-modern computer building. The new development program needs considerable expansion of people resources. In both Systems Developments and Production Services, and HSLA will be expanding its DP department by over 60% in the next year. This has to be one of the major new computer systems developments South of the Thames, commenced within the last twelve months.

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Technical experience must include a minimum of 5 years' IBM Cobol, in-depth OS/JCL or Command Level CICS and either strong supervisory skills or extensive technical knowledge. Familiarity with a recognised structured programming methodology is mandatory.

ANALYST/PROGRAMMER £9 - £11K

Would suit a competent Analyst/Programmer with at least 18 months' IBM Cobol, 12 months' systems analysis experience and a sound working knowledge of either OS/JCL or CICS Command Level. This position will appeal to an individual who wishes to combine both user contact and technical involvement.

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The bridge between the business requirements of the user and technical definition for the programmers. An analyst must have the personality and ability to work closely with users and with all levels of technical colleagues. Background must include the successful implementation of at least one system (or major subsystem) and a programming background, preferably on IBM equipment.

SENIOR PROGRAMMER £9 - £11K

A minimum of 3 years' IBM Cobol experience, with a sound working knowledge of OS/JCL and Command Level CICS is required. This position will suit a technically orientated programmer who wishes to remain close to the hardware.

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ANALYST/PROGRAMMERS c £10,000

BURROUGHS
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ANALYST/PROGRAMMERS to £11,000

HP BASIC/8PL
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PROGRAMMERS £ NEG.

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PROGRAMMER c £8,000

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CSD PROGRAMMER/ANALYSTS c NEG.

RPG11/RPG111
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* USER LIAISON SECTION MANAGER

£20-26,000

To supervise a project team of up to 6 staff. To direct analysis, programming, documentation and implementation of new and existing applications software.

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* ANALYST PROGRAMMER

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To be a senior member of the team responsible for analysing, designing and implementing materials management and warehousing systems.

Applicants must have a minimum of 5 years' experience in an on-line environment, at least 2 years' as a Systems Designer or Analyst/Programmer. Good liaison and communication skills are essential, as is COBOL, NATURAL, ADABAS or COM-LETE would be a definite advantage.

BUSINESS DEVELOPMENT CONSULTANT

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To identify, develop and secure client business opportunities. Applicants should ideally have a degree or business qualification and a minimum of 8 years' DP experience which must include systems design, programming, proposal preparation, both written and oral. Good appearance and the ability to work in an independent mode are essential.

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To be responsible for systems generation, applications program interfacing, JCL, utilities, etc.

Applicants should have a minimum of 5 years' DP experience of which at least 2 must have been working as a Systems Programmer.

- For the Saline Water Project OS/VS1 with CICS experience is essential, ideally some VM.
- For the Electrical Supply Project DOS/VSE, ideally with CICS, DL/1 and some database.
- For the Logistics Project MVS, VTAM experience is essential.

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Department of Physics

Hardware Engineer

Applications are invited for the post of Hardware Engineer (male/female) in the Elementary Particle Physics research group. The successful applicant will be required to design and commission electronic equipment including microprocessors.

A degree or equivalent is an appropriate subject with a substantial electronics content is required. Some experience in an electronics service and development environment is desirable.

The post is funded on Scale 18 (£5,540-£9,270) by a rolling grant from SERC. The appointment will be for two years initially.

Applications should be made to the Senior Assistant Secretary, University of Birmingham, P.O. Box 363, Birmingham B15 2TT, from whom application forms and further particulars are available, to reach him by Monday 4 October, 1982.

(0000)

OPS MANAGER

LONDON
Strong IBM and Management experience in an MVS environment is required for this challenging position.

SNR OPS/S LDR

LONDON
2-3 years DOS/VSE (E), VTAM, CICS (preferred) plus self motivation is required for these 3 positions.

DATA CONTROL CLERK

CITY
Expanding Bank site seeks experienced D.C.'s any Mainframe background. Excellent candidates apply.

For further details please contact Bulok Computer Services on 01-884 6923 (daytime) or 01-834 0081 (24 hrs) or write to:

BES 72 Rochester Row, SW1 1JU

Career in Computers

We have a PDP 11/34 mini computer and a larger VAX computer which will eventually form part of a network of DEC computers and word processors. The system assists our scientists with the recording and the analysis of critical drug safety evaluation data.

To help us maintain the smooth running of the system we need a computer operator/programmer, who will, after the necessary training, carry out the day to day running of the system, and join our team writing programs for its further development.

Male and female applicants with some experience in operating and/or programming will be preferred. Those with a minimum of 'A' Level Maths and 'O' Levels in English and a science subject, together with the appropriate application will also be considered.

Further details of the system, software, languages etc are available on request.

If you would like to apply please telephone our 24 hour answering service on Harlow (0278) 419373, leave your name, address and quote reference number 16/82 and we will send you an application form.

Beecham Pharmaceuticals

DESIGN ENGINEERS

Experience of logic design and micros. Electronic qualification required. Series.

SENIOR SOFTWARE ENGINEER

At least five years' experience in micros, communications, and time for Design and Project Management. London.

SYSTEMS ENGINEER

Two years' experience of micros, and low level systems. Knowledge of Z80. Oxford.

JUNIOR ENGINEER

Young engineers with good educational background. London.

For these vacancies and more, through the UK call Diana on 01-483 3456 or 01-680 9893 between 9am and 5pm Saturday/Sunday only.

Ref. 88317.

BES 72 Rochester Row, SW1 1JU

Appointments Bristol Polytechnic

COMPUTER STUDIES & MATHEMATICS DEPARTMENT

Lecturer II Senior Lecturer IN INFORMATION SYSTEMS ANALYSIS

Ref. No. L/57

Applications are invited for the post of Lecturer in Information Systems Analysis, duties to commence on 1 January 1983 or as soon as possible thereafter. Applicants should have a demonstrable interest in Information Systems Analysis within the framework of Information Systems in Organisations. The ideal candidate would have a background in both theory and practice in this area as well as familiarity with relevant social aspects of organisations. An ability to participate additionally in the more general teaching of the analysis and design of computer-based information systems would be an advantage.

SALARY SCALE:

L11 £6,855-£10,173 (bar) - £11,022 per annum

SL £10,173-£11,964 (bar) - £12,818 per annum

The appointment will be made on the appropriate scale according to relevant previous experience/service (progression from the L11 scale to the SL scale is in accordance with the provisions of the Burnham Further Education Report).

Applicants should have a good honours degree and preferably a higher degree. The successful candidate will be expected to participate in the research/consultancy work of the Department.

For further details and an application form, to be returned by 1st October 1982, please contact the Personnel Office, Bristol Polytechnic, Coldharbour Lane, Frenchay, Bristol, or ring Bristol 66281, Ext. 575.

Please quote Reference Number L/57 in all communications.

CAD SOFTWARE DEVELOPMENT

The design of a new generation of a Small Business Computer system at Burroughs Cumbernauld will utilise sophisticated design automation techniques including the use of advanced workstations.

Opportunities exist at all levels within an expanding CAD department for personnel with experience in one or more of the following:

- ★ High level programming
- ★ Interactive Graphics
- ★ Logic Simulation
- ★ Hardware Description Languages
- ★ LSI and PCB layout software
- ★ Performance Analysis

Contact Paul Dunachie, Systems Development Group.

Burroughs, CUMBERNAULD G68 0BN, Scotland.

Telephone: 023 67 36136 (reversing charges)

Burroughs
NEW COMPUTER SYSTEM

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A MAJOR NEW
SYSTEM TO
DESIGN

Senior Software Engineers for CGI

Appointments are to be made in the Instrumentation and Training Division of Marconi Radar, to work on high technology projects including computer generated imagery.

Applicants (male or female) should be experienced software designers with good qualifications and knowledge of the constraints of real time process control. Familiarity with PDP 11, VAX 11, their operating systems and Macro 11 and Pascal languages would be desirable.

Write or phone Ronald Herle, Marconi Radar Systems Ltd., New Parks, Leicester LE3 1UF. Telephone 0533 871461.

Marconi
Radar Systems



British Industrial Sand Limited
require a

SYSTEMS ANALYST CHESHIRE - CIRCA £9000

British Industrial Sand Limited require an experienced Systems Analyst to join our Systems Development Team. Applicants will be aged between 25 and 35 and should have gained commercial background with at least three years experience gained on I.C.L. 1800/2803/DME Systems. Experience in on-line systems is preferred but not essential as training will be given.

Our present configuration consists of an I.C.L. 2948 computer with 1½ megabytes of memory and EDS and PDS backing store. Attached to the computer are 12 remote sites, with both interactive and RJE terminals. We utilise T.P.S. to develop our on-line systems, all development work is carried out interactively.

The successful applicant may be eligible for removal expenses.

Apply in the first instance with details of your career to date to:-

Ms Mr E Dye
British Industrial Sand Limited
St Anna House, Parsonage Green
Wiltshire, Wiltshire SN8 1HG

Job Spot

FNS

**SENIOR
ANALYST:**

TOP SALARY

First National Securities Ltd., a leading consumer finance company are on the threshold of major D.P. development which has created a need for a **Systems Analyst**. A senior member of the team, the analyst will lead projects from feasibility through to implementation and be responsible for documentation standards and support. Applicants are likely to have three years experience in a commercial environment with a programming background ideally on IBM equipment. Knowledge of financial applications and established user liaison skills are preferable. First National Securities offer a highly competitive salary and a range of benefits normally associated with a financial institution.

LOCATION: MIDDLESEX. JAS08/1.

Cardkey

PROGRAMMER

to £11,000

Cardkey Systems, a part of Fairchild Industries and V.B.I. Corporation, are the current world leaders in the Access Control Industry. To meet expanding business they require an additional **Programmer** to work on existing packages, customising them to clients individual requirements. In addition to holding a full driving licence, candidates should have a minimum of one year's programming experience in a real time environment using Macro II and Assembler on PDP11 Hardware. In addition to salary and usual large company benefits, including free BUPA, there will be an opportunity for occasional travel to Europe.

LOCATION: BRACKSHIRE JAS08/2.

National

OPERATIONS

& EXCELLENT

National Panasonic, a leader in the world of consumer and industrial electronic goods and components have recently upgraded their hardware strategy to dual IBM 4341's operating under DOS/VSE, utilising Power and CICS. To meet this progression they are seeking to recruit **Operators** with a minimum of eighteen months experience in an IBM environment using DOS/VSE. Excellent opportunities exist to become directly involved with systems programming and operations management. The department operates on extended days and no unsocial hours are involved. National Panasonic offer a highly competitive salary and benefits package normally associated with a large successful organisation.

LOCATION: SLOUGH. JAS08/3.

EPC

**ANALYST
PROGRAMMER**

to £10,500

EPC is a major manufacturer of quality foods producing household names such as Knorr, Mazola and Hellmann. They are currently seeking an **Analyst Programmer** who will assume an important role in a compact team utilising an IBM 8785B supporting RPG III. Ideal candidates will have at least 4 years experience on GSD or mainframe hardware using RPG or PLI in an on-line environment. In addition to salary there are a wide range of large company benefits including discount on goods, subsidised restaurant and an active sports social club.

LOCATION: SURREY. JAS08/4.

dp

**Confidential Reply
TECHNICAL
ANALYSTS**

to £12,000

A leading worldwide shipping company has agreed a strategy placing them at the forefront of automated office technology. The technical support team has responsibility for analysing the requirements for hardware and software development, data communications, operations support and data administration. A commitment to planned expansion has created a requirement for **Analysts** with a minimum of two years experience in a Hewlett Packard or Tandem environment. Applicants will have planned, implemented and installed systems to recognised standards and procedures. Database and data dictionary analytical skills would be advantageous. Our clients offer excellent working conditions and benefits.

LOCATION: LONDON. JAS08/5.

MPI

PROGRAMMER

to £12,000

Microcomputer Products International are leading suppliers of software for GPM based micros. Planned expansion has created the need for an additional **Programmer** to provide customer support and develop programs and systems, utilising an extensive range of microcomputers. The successful candidate should have gained around five years programming experience in a large mainframe environment supporting Cobol. In addition a knowledge of Assembler is desirable and applicants will be able to demonstrate effective user liaison skills. Salary is in a range according to experience and in addition to usual benefits this position will attract free membership of BUPA.

LOCATION: LONDON. JAS08/6.

Action..

ring or send the coupon to
D.P. Recruitment Ltd.
Freeport, London W5 2ET
01-567 5501

Name _____
Address _____
Home tel. _____
Work tel. _____
I am interested in Ref. _____

Communications Software Specialist (IBM bias)

Worcestershire

Our strategic plan is to build an environment in which the Integrated Multi-System Approach is the main objective.

We are no newcomers to communications technology and our current IBM VTAM/SNA environment puts us in the top of the most powerful computer installations in Europe. The way forward entails introducing intelligent multi-micro-processor communications networks to augment our existing 3705's and to give us X25, X3 and DSI capability with the eventual implementation of full SNA networking.

This new appointment will form part of a core of people providing the software expertise and technical direction necessary at all stages of development and subsequent support.

Our Candidates will probably be Graduates with a computing or communications bias, where experience

should incorporate a fluency in ASSEMBLER gained in technical software or systems programming. A practical understanding of C.C.I.T.T. communications protocols and standards is desirable, particularly X25, SNAP and BISYNCH and if possible packet switch system and SNA. Specific IBM experience should include a familiarity with 3705 FEP's and associated software.

We can provide you with a career opportunity that avoids the pitfalls of over-specialisation and additionally offers the prospect of taking on a variety of projects particularly evaluation of new software technology.

Candidates interested in discussing this position further should telephone Alan Carnell on 021-236 3781 (24 hour answering service) or 021-784 6063 (7-9 Evenings and Weekends).

Successful candidates from outside of the region will qualify for a generous relocation package.

Technical, Sales & Management Appointments

Specialist Computer Recruitment Ltd

SOUTH
James House, 46 James Street,
London W1M 5HS
01-336 0671/486 0461

MIDLANDS & INTERNATIONAL
30-37 Great Charles Street,
Queen'sway, Birmingham B3 3JY
021-238 3781

NORTH
Blackhills House, The Parsonage,
Manchester M3 2JA
061-833 0427

BRISOL
Avenue Louise 327,
Rte 4, 1050 Brussels
020 322-640/7161/71

HOLLAND
Williamspleinweg 92,
1071 H M Amsterdam
010 3120-780947

Computer Operators

£5,000-£7,000 pa
+ shift allowance

With experience of output processing equipment, operating to OCR standards and processing equipment which includes IBM 3800 and 3211 via MVS consoles. Output processing and control work to service deadlines on a 24-hour basis, 7-day shift working, attracting a generous shift allowance.

Access

Grow with Access...

...and expand your technical skills in the process

Access is one of Europe's leading credit card operations. With demand for our services growing at a consistent rate, our DP capabilities are of increasing importance to our development. We are currently using IBM 3033/3032 and 158 computers operating under MVS/SP with ACF/VTAM, CICS and ROSCOE with teleprocessing links to Europe and the USA, and will soon be adding an IBM 3081 to our configuration. This means we can offer high calibre operations staff exceptional scope to develop their career in a highly stimulating environment at our Operations Centre in Southend, where we have an integrated approach to career development enabling individuals to progress according to their ability.

Salaries will be dependent upon experience and age. We also offer a

valuable range of large company benefits, including non-contributory pension and life assurance scheme, up to 28 days holiday, loan facilities after a qualifying period, free banking, first-rate working conditions, subsidised restaurant, flexitime working in some DP departments and active sports and social facilities. What's more career prospects within our expanding organisation are excellent.

So build up your network of experience and enjoy excellent career prospects with our young DP team. Please telephone or write for an application form, indicating which post you are interested in to Hazel Stokes, The Joint Credit Card Company Limited, Chartwell House, 385 Chertwell Square, Southend-on-Sea, Essex SS2 5ST. Tel: Southend-on-Sea (0702) 352211.

Operations Analysts

£6,800-£11,000 pa

With experience of working in a large multi CPU installation and an in-depth knowledge of MVS/JES2 and packages such as LIBRARIAN and ROSCOE, for space management, resource scheduling, or operations support, involving the development and implementation of new systems including hardware and software applications.

THE SILICON VALLEY OF EUROPE
In the early 1970s, the Irish Industrial Development Authority (IDA) recognised the electronics industry as offering major growth prospects for investment and employment. Following an aggressive marketing campaign to attract some of the world leaders in the industry to set up manufacturing plants in Ireland, electronics has now expanded to the point where Ireland is often referred to as the "SILICON VALLEY" of Europe.

17 of the top 100 U.S. electronic companies now have factories in Ireland. Such well-known names as Digital, Mostek, AMDahl, Wang, Apple, General Electric, Westinghouse, Storage Technology and Perkin Elmer are firmly established in Ireland. From Japan came Fujitsu and Nippon Electric and Siemens from Germany. Products range across the spectrum of Mini and Main-Frame computers: Microprocessors: Medical and Scientific Instruments: Consumer Electronics: Process Control Equipment: Printers and Telecommunications Equipment.

1985 output of the Irish electronics industry will exceed 1R pounds, 1,200 million and the current employment level of over 15,000 will have doubled by the middle of the decade.

SOFTWARE GROWING
So far we have been talking about the Hardware side of electronics. But Software is dramatically growing in importance within the Data Processing and computing industry. As Hardware costs decrease with mass production, the complexity and cost of Software is growing. The importance is also growing and with it the need for large numbers of trained and skilled staff.

Increased use of high-level computer languages, the development of structural programming techniques and the introduction of wired standard programmes for mass-produced Software has helped to simplify matters. All these solutions, however, depend on people for their success.

50 PER CENT UNDER 25:
And people are exactly what Ireland has to offer. A well-educated, English speaking youthful workforce is yearly appearing on the job market in a country where the population is increasing by 1.5 per cent per annum and 50 per cent of that population is under the age of 25.

The IDA has reacted to this new found change of emphasis from Hardware to Software by introducing an incentive programme to encourage Software development and Data Processing companies. A comprehensive national effort has been made including education of Personnel, Development of Telecommunications, an extensive Tax Environment, Grants, Research and Development Facilities and the setting up of Business parks for service type industries.

Previously IDA grants had been aimed mainly at manufacturing industries. While these facilities are still being promoted as actively as ever, a new scheme of incentives for service industries, which include Data Processing and Software development, were introduced.

This IDA incentive package includes:

EMPLOYMENT GRANTS:
Cash grants payable on the job created. These grants are negotiable and can vary with the characteristics of the employment.

TRAINING GRANTS:
Up to 100 per cent of the cost of an agreed training programme for staff in new service industries. The grants can cover the cost of sending staff abroad for training; The Salaries, travel and subsistence expenses of training personnel and certain training courses geared to meet particular needs.

FAVOURABLE TAX ENVIRONMENT:
A maximum tax rate of 10 per cent is levied on the profits of companies engaged in Software development. This low corporate tax rate is particularly attractive to companies who are

developing new products or expanding into new markets.

CAPITAL GRANTS:
A wide range of non-repayable cash grants are offered by the IDA to Software and Data Processing companies. These grants are given to cover the cost of fixed assets including computers, essential office furniture and accommodation, whether purchased or leased. Where leased, the percentage grant is given as a rent subsidy for the first 5 years.

LOW COST FINANCE:
Due to the favourable tax environment, the Irish banks can offer loan finance at low interest rates.

To qualify for all these incentives, companies must be export oriented and potentially able to create at least 20 jobs.

ALREADY IN IRELAND:
Some of the Software development and Data Processing companies already operating in Ireland which have been granted aid by the IDA include:

FROM THE UK:
Altersco (Ireland) Limited: Computer Ancillaries Ltd (CAL): Distributive Computer Systems (DCS).

FROM THE U.S.:
Cadi (Ireland) Limited: Micropro (Ireland) Ltd: Insetu Europe Limited: Connery Ireland: Four Phase Overseas Corporation: Informatics General Corporation.

OTHER COUNTRIES:
Briscon Programme (Ireland) Limited: The European Software Company: Memory Ireland Limited: Meptec International Limited.

These service type industries are undoubtedly going to grow in importance over the coming years as the information society takes hold. With the IDA incentive package for these industries in operation, Ireland is poised to take more than its share of expansion in this market.

APPOINTMENTS IN SOUTHERN IRELAND

WANG

Wang Laboratories of Massachusetts U.S.A. are the World's largest suppliers of C.R.T. based Word Processing Systems and we employ over 18,000 people in the Support, Sales and Manufacturing of a wide range of products.

In Ireland we are steadily expanding from our current base of over 300 people and as part of the expansion we wish to attract a first class

COMMUNICATIONS ANALYST

COMPETITIVE SALARY & CAR

Your job will be to provide all aspects of pre and post-sales Telecommunications Support for Ireland and in this role you will have pre-sales consultation, networking specification, protocol support plus customer contact on new products such as Wangnet.

As the successful candidate for this key position you will have sound technical experience in data communications in a sophisticated D.P. environment including synchronous protocols such as 3270, 2780/3780, HDLC and SDLC. Expertise in such areas as Message Switching, CICS etc. would be advantageous as would a knowledge of a high level Language. A good appreciation of the developments in the telecommunications field is essential including broad band technology if possible.

Ideally we are looking for good presentation skills and a person seeking the challenge and satisfaction only to be found in the Sales Support environment.

Training on new developments in the D.P. and Telecommunications technology will be provided both in the U.S.A. and Europe to enable you to upgrade your current skills.

In return we will reward you with an above average benefits package and a competitive salary. A car is provided for this position.

Please write or send a short resume to:

Hamilton Elliott,
Systems Support Manager,
Control Systems Ltd.,
Ferry House,
Lower Mount Street, Dublin 2.

MAKING THE WORLD MORE PRODUCTIVE.

SYSTEMS ANALYSTS AND PROGRAMMERS

- OVERSEAS OPPORTUNITY

A major Irish systems house in Dublin requires additional personnel with experience of IBM mainframe systems. Programmers should have a minimum of one year's RPG. Systems personnel should have two years on commercial applications. Excellent salary and benefits. Ref: HAL/1/R

PROJECT LEADERS - CORK

A leading producer of consumer products for export and the home market requires two Project Leaders to embark upon a major development program. This national concern plans to install a distributive network of computing. Salary will not pose a problem for the right people. Ref: HAL/2/R

C.I.C.S. PROGRAMMERS - DUBLIN

A major marketing control organisation with responsibility for national consumer experts need good Cobol CICS programmers to play a major role in implementing a new real-time on-line system based on an IBM 4341 mainframe. A secure environment with an excellent salary. Ref: HAL/3/R

SYSTEM 34 PROGRAMMERS

To work on a variety of international projects. This leading Dublin-based consultancy requires just two years' good experience. Naturally, all the benefits associated with a company of this kind can be expected. Ref: HAL/4/R

ACCOUNTANT ANALYST (ACCA, ACMA)

To act as Implementation Consultant/Manager for product services. A second European language, preferably German, would be a plus. Ref: HAL/5/R

MAAPICS PROGRAMMER

Two-three years' experience on IBM mainframe systems using RPG II or RPG III. To join an organisation who specialises in IBM software worldwide. This company is Dublin-based and offers excellent rewards. Ref: HAL/6/R

Edmund Howard & Partners
5 Brighton Road, Surbiton, Surrey, England
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SENIOR IMS and MVS SYSTEM PROGRAMMERS

Dublin based with international travel

The European Software Company Ltd. is a highly successful Irish company, marketing sophisticated system software products throughout Europe. Due to continued growth and increasing market share to date, we have in excess of 1,000 software products with more than 800 European customers.

Presently we require two Senior System Programmers with a minimum of five years' experience on IBM Systems, encompassing a broad range of software products in particular IMS or MVS, perhaps both. Accompanying these skills candidates should be able to demonstrate a sound business attitude, self motivation and a willingness to travel overseas. These appointments will be based at our new modern offices in Dublin.

Here are two first-class appointments offering challenge, generous rewards, travel and long-term career opportunities. If you have the expertise, don't hesitate. Call our Dublin office immediately, or write giving full details of your career to date.

The European Software Company

5 Hebert Place, Dublin 2 Tel: 502841/602676

SYSTEMS ANALYST PROGRAMMER

Howmedica International, Inc. is an international organization, world leaders in development, manufacture and distribution of orthopedic implants. As part of our ongoing development programme we are in the process of installing on-line computer systems to replace our current batch systems. We recently purchased an IBM System 34 with maximum configuration and 14 work stations and intend to complement this configuration with an IBM System 38 in the near future. We are implementing a major project and a number of other software packages to completely integrate our manufacturing, distribution and administrative activities. As a result of this the following vacancies now exist -

Programmer

Applicants must have at least 3 years' experience of RPG II and the IBM System 34. The successful candidate will be responsible for the installation, programming and operations attenders.

Systems Analyst

Applicants will have a minimum of 4 years' data processing experience in programming and system analysis. He/She will have been involved in at least one system from design through to user acceptance stage. Ideally, though not essential, the applicant will have experience of a manufacturing industry and capable on an IBM System 34.

The successful applicant will be expected to work with users from requirement analysis to user acceptance stage with the minimum of supervision.

This is an ideal career opportunity for the successful candidate to become involved with the latest technology and equipment currently available.

Salaries are competitive and negotiable and the full range of fringe benefits associated with a progressive organisation are in operation.

Applicants should send a brief resume of their career to: The Director of Personnel, Howmedica International Inc., Rahen Industrial Estate, Limerick.

Howmedica International, Inc.

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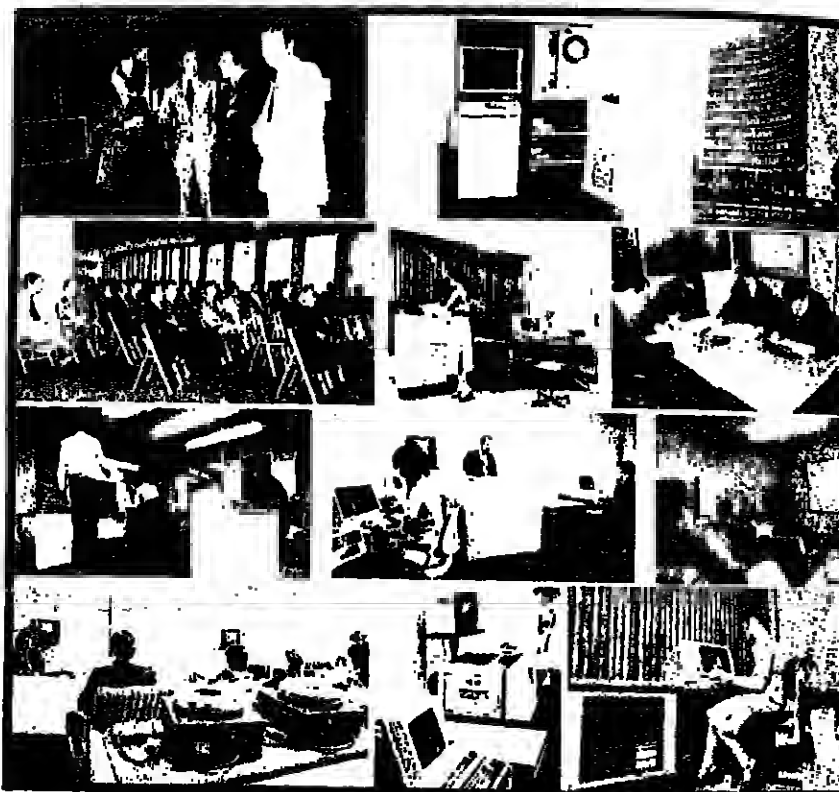
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We in turn offer the following:

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7. We'll develop you as far as you can go

We envisage installing up to 300 more systems and packages throughout 1982/3. We need Salesmen to sell them, Project Managers to design, enhance or install them. Programmers to build the extra packages or special systems, staff to install them, maintain them, document them and re-enhance them further. It is a never-ending growth pattern. More work, more people, more prospects. We need the Staff of today and the Leaders of tomorrow. At every level. Sales Staff throughout the entire UK. Development staff throughout the Midlands and N. Staffordshire. Low cost housing. Attractive salaries, real career opportunities. The chance to be part of tomorrow's world today! Work with leading Manufacturers' products, ICL and Honeywell. The latest MINIS and MICROS. We will pay what you are worth, and keep on developing you. The market all top potential staff are moving to today is the Turnkey/DEM/Package sector. We have been in it six years already. How about starting ahead of the field? Help us extend the lead further. Telephone or write to us today for convenient interview dates. We will give you a first, second interview and a decision within 14 days of contact. You will find yourself, if selected, working for many of the leading UK companies as EMS clients. Examples include Banks, Mail Order, Chain Stores, Food Producers, Chemicals, Engineering, Pottery Manufacturers, Car Leasing Systems. So much opportunity for you, so many options. A career second to none! Telephone or write today. We will be expanding every month for the next few years. Why wait? Respond today, whatever the date you are reading the advert - we will still have vacancies. Interviews will be in Birmingham or Newcastle, Staffs initially.

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Birmingham, Newcastle, Staffs, Home Counties



We need the best staff in the Midlands and North
We have a large rapidly growing customer base
Can you contribute at any level to our organisational plans?
Positions from £5,000 to £30,000 p.a.

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51-53 Hagley Road
Edgbaston
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Tel: 021-454 7906

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E.M.S. Consultants Limited
61 Lower Street
Newcastle-under-Lyme
Staffs ST5 2RS
Tel: 0782-623665

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Step up from Systems Programming or Operations into
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Direct responsibility for:

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Responsibility to:

The Data Processing Manager

In addition, duties will embrace technical support and guidance in the operations areas, although day to day running and scheduling will be controlled by the Operations Manager. Two systems programmers will report to the incumbent. The candidate must be fully capable of planning and installing systems up-grade, organising machine layouts centrally and remotely and making positive contribution to lease and contract negotiations.

Our client is dedicated to the advancement of new technology within its field and this post is an outstanding opportunity for career development in the technical management field. Initial interviews will be carried out in London and the North of England.

Daytime
01-836 6775

TELEPHONE: SUE ASHBY & ANNE BETTS

Evenings
0844 53531

Candidate must be
fully conversant with
IBM 4331
and ideally 4341
equipment together
with the ability to
communicate
clearly in
both written and
verbal manner.

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BUSINESS ANALYST (Commercial Sector)

Part of a large International group with our headquarters in west Berkshire, we are a leading designer and manufacturer of a wide range of electric cables.

We wish to recruit a Business Analyst, at senior staff level, to advance the development of a computerised system in the commercial sector. Applicants must have had sound experience using computers in commercial systems and have a manufacturing background.

This is a good opportunity for the right person. Benefits will include an attractive salary and relocation expenses, if appropriate.

Please forward your personal details and career history to Mr J. W. Harding, Personnel Manager or telephone or write for an application form to Sterling Cable Company Limited, 8th Road, Aldermaston, Reading RG7 5QQ, telephone Woolhampton (073521) 3221.

STERLING

LONDON BOROUGH OF SOUTHWARK Systems Programmer

AP4 - £7,509 to £8,145 or
AP5 - £8,379 to £8,883 or
SO1 - £9,198 to £9,741
(Salary review pending)

This vacancy is within a team of four support staff who provide software and operational support to all our mainframe users and are responsible for the support, testing and implementation of all new software products, base software updates and new hardware.

The Borough has recently upgraded from an ICL 290 to an ICL 2868 and runs under VME/B 6.23 with some SYS 4 PMS, and is becoming increasingly more involved in TP/IMS applications.

Applicants should have a good working knowledge of VME/B, SCL and COBOL. Experience with TP-based systems would be an advantage.

South-East Vacancies

(apply to Croydon Office)

PROJECT LEADER SURREY c£12,000

Our client requires a Project Leader/Consultant with 5-6 years D.P. experience, including analysis and project leadership. The ideal candidate will be familiar with ICL equipment and have experience in financial, especially pension systems. Foreign travel possible in the future.

PROJECT LEADERS BEDFORD £ Neg.
Several project leaders, with at least 6 years commercial application experience, are required by a leading systems consultancy. Candidates will preferably have varied experience on a wide range of hardware.

ANALYST/PROGRAMMERS NEAR CROYDON £ Neg.

Good COBOL people required, preferably with ICL ME29 experience, but anyone with a proven record of competence will be considered. Attractive salary offered, commensurate with experience.

ANALYST/PROGRAMMERS CRAWLEY £10,000

IBM people with RPG2 and COBOL experience on commercial and manufacturing applications required. This is a large manufacturing company with a D.P. department of about 25 people, and some travel may be required.

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CW 372

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A background involving financial systems design and experience with DEC equipment would be particularly relevant. The salary offered will be augmented by an excellent Benefits package.</p> <p>CITY</p> <p>A leading city insurance company urgently requires two Systems Analysts with between 1 and 3 years' formal Analysts experience and an ICL COBOL programming background. These are excellent opportunities in a long term development situation attracting a full range of Company Benefits as well as negotiable basic salary.</p>	<p>PROGRAMMERS</p> <p>GOOD</p> <p>PROGRAMMER/ANALYST</p> <p>£10K MIN</p> <p>AN/PROGRAMMERS & ANALYSTS</p> <p>to £11,500</p> <p>ANALYST/PROGRAMMERS</p> <p>to £10,500 + MORTGAGE</p> <p>TEAM LEADER</p> <p>£12,500</p> <p>ANALYSTS</p> <p>£NEG + MORTGAGE</p>	<p>SE LONDON</p> <p>An International Banking organisation has several vacancies for Programmers with 2 to 3 years' COBOL experience gained in a CICS environment. They are utilizing IBM 4341's locally, linked to larger IBM mainframes off-site. The work involves a cross-section of Banking applications and offers every opportunity to progress quickly through a definite career structure. The basic salary is greatly enhanced by a full Banking benefits package.</p> <p>CITY</p> <p>Our clients are in the Insurance sector and require a bright, young COBOL programmer with around 2 years' HONEYWELL experience. Candidates should have used TDS and will be expected to contribute to a team variously engaged on new applications and handling maintenance and conversion from OS 2000. BENEFITS include MORTGAGE and Bonus.</p> <p>CITY</p> <p>We are looking for a mature Analyst/Programmer for our clients, a famous name in the London Insurance Sector. 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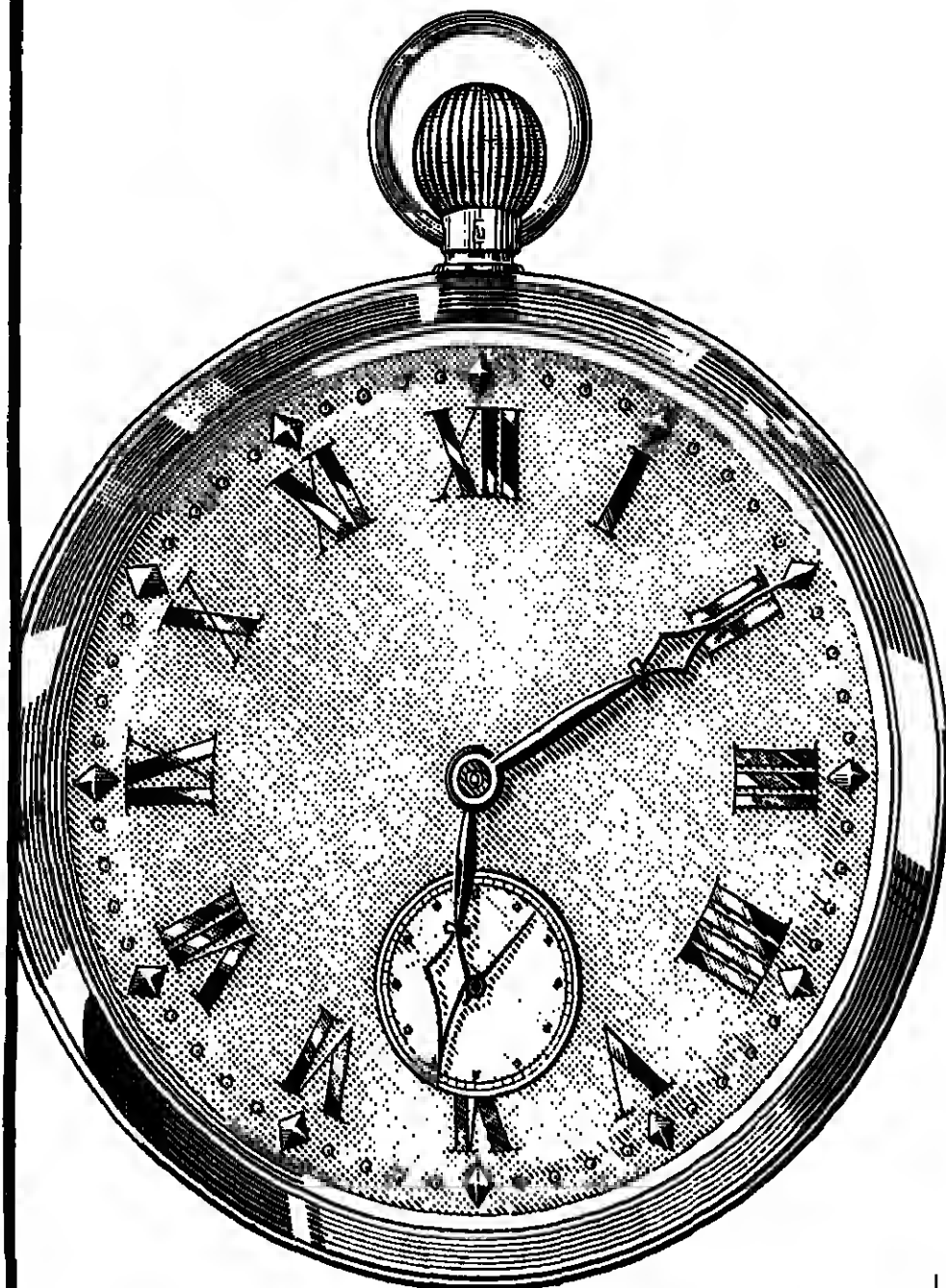
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